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ORIGINAL LECTURES.

ON THE GENERAL ETIOLOGY AND SYMPTOMS OF CHOREA.

BASED ON THE RECORDS OF 410 CASES AT THE INFIRMARY FOR NERVOUS DISEASES, PHILADELPHIA.

Two lectures delivered at the Infirmary during the Summer Session.

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LECTURE I.

GENERAL ETIOLOGY.

ALREADY from this hospital a large number of important contributions to the clinical history of chorea have been made. These are embodied in Mitchell's *Lectures on Diseases of the Nervous System*, in Sinkler's article on "Chorea" in Pepper's *System of Medicine*, and in numerous papers by Mitchell, Sinkler, Gerhard, Allison, and Morris J. Lewis.¹ By the kindness of my colleagues I am enabled to utilize the rich clinical material which has accumulated since 1876, and these lectures represent our combined experience.

Historical Note.—The recognition of chorea as a distinct disease dates from Sydenham, whose *Schedula monitoria* (1686) and *Processus Integri* (1699) contain brief but very accurate accounts of the affection as we now know it. During the fourteenth, fifteenth, and sixteenth centuries, under the influence of religious excitement, there were epidemics of dancing mania, particularly in the Rhenish provinces. Pilgrimages were made to various shrines in search of relief, and as that of St. Vitus, in Zabern, was specially famous the dance became known by his name. Elsewhere it received other names, as St. John's or St. Anthony's dance. The epidemics gradually died out, but curiously enough, as Charcot states,² an annual pilgrimage of dancers, in perpetuation of the custom, is still made to the church of St. Willibrod, in Luxembourg; and Hirsch³ refers to a "procession of the jumping saints" which is still commemorated at Echternach. It is interesting to note that in Kentucky and Tennessee, in the early part of the century, during periods of intense religious enthusiasm, there were epidemic convulsions, similar in some respects to the dancing mania of the middle ages. In 1805, Dr. Felix Robertson described them in an "Essay on Chorea Sancti Viti," in his doctorate thesis at the University of

Pennsylvania.¹ It was unfortunate, to say the least, that Sydenham should have given the name chorea to an affection which had nothing whatever to do with the Chorea Sancti Viti of the older writers. However, there need not now be any confusion, as custom has sanctioned the use; and this is not the only instance in medicine in which we know a disease by a name the original signification of which has long been lost. The affection which Sydenham described is known as chorea minor, in contradistinction to chorea major, a term which has been applied both to the dancing mania and to the graver form of the ordinary disease. Commonly, however, we employ the term chorea, or St. Vitus's dance, alone to designate the disease of children, and use qualifying terms when we refer to varieties or symptomatic forms.

It would be ungrateful in a historical note, however brief, not to mention certain of the authors to whom the profession is specially indebted. From the monographs of Bouteille (1810), in France, and Bernt (1810), in Germany, we may date the modern study of the disease. In the former country Trousseau, Roger, and Sée, whose essay (1850) has served as a model for many succeeding workers; in the latter country, Romberg, Steiner, and Ziemssen. In Great Britain, the Guy's Hospital physicians Bright, Babington, Addison, Hughes, Wilks, and Pye-Smith, have made special contributions, while Todd, Begbie (Sr.), Kirkes, Ogle, Hughlings-Jackson, Broadbent, Dickenson, Hillier, Tuckwell, Bastian, Sturges, Gowers, and more recently Money, Horsley, and Stephen Mackenzie, have striven to place the disease on a firm anatomical and clinical basis. In this country, in addition to the works already mentioned from this hospital, there have been many reports of cases and careful studies of the disease by Levick, Wood, Mills, Jacobi, Hammond, Hamilton, Haven, Hutchinson, Huntington, and Putnam.

Definition.—Chorea is not only burdened with old associations, but recent studies have so widened our knowledge of choreiform symptoms that it is somewhat difficult to define the precise limitations of the disease. Indeed, there are those who would deny its existence as a separate entity, and claim that it is merely a symptom, not a disease. In our present knowledge the following is a convenient classification based on that adopted by Charcot.

1. *Chorea*, a primary and independent disease of unknown causation, affecting children, more rarely adults, and characterized by involuntary and irregular contractions of the muscles, and a variable amount of psychical disturbance. Certain forms occur under special conditions, as chorea gravidarum, senile chorea, habit chorea, chronic chorea, and the hereditary form; but it is quite probable that subsequent investigations

¹ Among these may be mentioned Gerhard: Report on thirty cases of chorea, Phila. Med. Times, 1874; Report on eighty cases of chorea, Amer. Journ. Med. Sciences, 1876. Sinkler: Chorea in the aged, Journal of Nervous and Mental Diseases, vol. viii, 1881; Chorea in the negro, THE MEDICAL NEWS, 1882. Allison, Amer. Journ. Med. Sciences, 1877. Morris J. Lewis: THE MEDICAL NEWS, 1886.

² Les Démoniaques dans l'Art, 1887.

³ Geographical Pathology, vol. iii.

¹ See, also, David Yandell on Epidemic Convulsions, Brain, vol. iv.

will separate some of these varieties from the common chorea with which at present they may be provisionally grouped.

2. *Pre- and post-hemiplegic chorea*, a symptomatic affection, first described by Mitchell, characterized by incoördinate, irregular movements, of the same nature but slower, less brusque, than those of common chorea, usually unilateral and dependent upon a lesion in the pyramidal columns between the bulb and the gray cortex. Athetosis, hemi-ataxia, hemi-sclérose en plaque, and hemi-paralysis agitans, are some of the names given to this condition.

3. *Rhythmic chorea*, in which the involuntary movements follow a more or less regular rhythm, often imitating certain expressive acts, such as dancing—saltatory chorea—or the performance of professional acts, as hammering, weaving, etc. Cases of this kind are usually hysterical.

I propose to consider only the common chorea and such of its varieties as have come under observation at our clinics.

Sex.—The greater liability of the female is shown by the following figures:

Males	125
Females	282
Sex not noted	3
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This gives 1 male to 2.25 females, a somewhat lower proportion of females than is usually stated.

Age.—Chorea is essentially a disease of childhood and of adolescence.

The age incidence is shown in the following table:¹

	Totals	Under 4	5	6	7	8	9	10	11	12	13	14	15	16-20	21-25	26-30	31-35	36-40	Over 40
Males	117	7	3	8	7	7	13	9	1		12	4	8	8	1				
Females	275	10	10	13	21	30	35	30	23	22	11	16	17	32	2	1	1		1
	392	17	13	21	28	37	48	39	37	38	23	20	25	40	3	1	1		1

Arranged in decades the figures are as follows:

First decade	203
Second decade	183
Third "	4
Fourth "	1
Above fourth decade	1

The second and third hemi-decades are the most important periods, containing more than three-fourths of the entire number. Thus:

First hemi-decade	30 cases, or 7.5 per cent.
Second "	173 " " 42.1 "
Third "	143 " " 34.8 "
Fourth "	40 " " 9.7 "

The age incidence seems earlier in females than in males. Thus, in the females the second hemi-decade contained the greatest number of cases, 129, or 46.9 per cent., while the third hemi-decade in males contained

the largest proportion, 54, or 46.1 per cent. After the age of fifteen the preponderance of females is greater than in children.

It is interesting to note that chorea in this country appears to attack children at an earlier age than in Great Britain and on the continent. Thus, in the recent report of the Collective Investigation Committee of the British Medical Association,¹ in which Dr. Stephen Mackenzie has analyzed 439 cases, the greatest incidence of the disease was in the third hemi-decade, and in our table a much larger number of cases, 30, occur in the first hemi-decade against only 6 in the English report. Under four years and over twenty chorea is a very rare disease. It is difficult to determine the earliest age at which the affection begins. Possibly it is in some cases *congenital*. There are two instances in the case-books stated to be of this nature. One of these is given by Sinkler, in his article in Pepper's *System of Medicine*.

A girl (Case 246), aged nineteen, whose mother while pregnant was frightened at the sight of a choreic child. The movements were general and continuous. The intellect was not impaired.

In Case 104, a boy, aged (now) fourteen, the movements were noticed within a few months after birth and have persisted ever since, with variations in intensity. When seen a few weeks ago there were irregular choreic twitchings of the muscles of the face, arms, and trunk. No paralysis; no spasm; head small, and intellect feeble.

In Case 162, a lad, who was at the hospital in 1882, and who returned for examination a few weeks ago, the mother, an intelligent woman, states that she was born with it, and that her mother had chorea very

severely while carrying her. The jerky, irregular movements of the infant for the first three or four months of its life are essentially choreic, so that it is very difficult to determine whether, in any instance, the disease is really congenital. Similar, probably identical, in character are the movements of the foetus in utero.

Senile chorea is even more uncommon. Case 72, was a woman, aged eighty-two. Sinkler has reported this case² with one other, the only instances I find recorded in this country. Saundby³ has collected twelve cases, the ages ranging from fifty to eighty-six, six of each sex. It seems to be an intractable affection, similar in many respects to the juvenile form, not often associated with rheumatism, and the subjects of it are very frequently demented.

Although we meet with cases of chorea in all ranks

¹ British Medical Journal, February 26, 1887.

² Journal of Nervous and Mental Diseases, 1881.

³ Lancet, 1884.

¹ I have to thank Dr. Burr, the Resident Physician, for these statistical details.

of society, it is so much more frequent in the pauper and working classes that our knowledge of the disease has been drawn largely from the experience of hospital physicians. In Mackenzie's report to the British Medical Association, the returns, which were largely furnished by general practitioners, give 72.27 per cent. of the cases as belonging to the lower classes.

The *race relations* of chorea have been carefully studied at this hospital by Dr. Mitchell. From a large number of replies to inquiries sent out regarding the prevalence of chorea in the South, he concluded that it was rare in the negro. This appears to be the common experience of those who practise among the colored people. Here and there, however, we find it stated that the children of both races are equally affected. Sinkler¹ confirms Mitchell's statement, and has seen but one case in the full-blooded negro. On this point the records of the institution are very conclusive. So far as I can ascertain, no negro child of pure blood has ever been under treatment here for the disease, and there have been only three or four mulatto children. It is estimated that the proportion of colored population to the white is in Philadelphia about 1 to 25, at which ratio we should have had a very much larger number of colored patients were chorea as common in them as in the whites.

Recently Mulheron, of Detroit, has recorded a case in a negro boy.²

I have made inquiries as to the occurrence of chorea among the Indians. Dr. Waldron, of the Hampton Normal and Agricultural Institute, Hampton, Va., writes that he has never seen a case in an Indian, and that there had not been any in the school since its foundation. Dr. McLelland, of the Lincoln Institution of this city, writes to the same effect. Dr. O. G. Given, Physician to the Indian School at Carlisle, Pa., states that during the five years in which he has had medical charge of the children there has been only one case, and that was in a scrofulous and epileptic subject. Professor Robert Bell, of the Canadian Geological Survey, who has studied the habits and diseases of the Indians from Gaspé to the Rocky Mountains, and from Lake Huron to Hudson Bay, has neither seen nor heard of a case. Chief Peter Jones, a physician who has practised for twenty years among the Misissaguiss and Six Nation Indians at the Reserve near Brantford, Ontario, informed Prof. Bell that he had seen three cases in half-breed girls, and had heard of two others. He does not think that it ever occurs among the full-blooded Indians. Dr. R. M. Stephen, Government Physician to the Indians of Manitoulin Island, has not met with a case in five years' practice. In twenty-five years' experience in the Canadian North-West, Dr. Schultz has seen only one case, and that was in a half-breed.

Dr. Bell has also made many personal inquiries for me on this point, and concludes that the disease does not occur in the full-blooded Indian, and is exceedingly rare among the people of mixed blood.

Seasonal relations.—For some years past the relation of chorea to the season of the year has been made the subject of careful study at the Infirmary, and in a paper by Gerhard,³ in Mitchell's lectures, and, more recently,

in a communication by Dr. Morris J. Lewis,¹ we have almost all the data of value which have been collected on this subject. Lewis's work covers our records to date, and is based on a study of 437 separate attacks of chorea. October and November are the months with fewest attacks, 4.1 and 4.3 per cent. respectively. The number increases in December, and in January reaches 8.2 per cent. The greatest number of attacks occurred in March, 15.3 per cent. There is a fall in April, a rise in the number in May and July, and then there is a steady fall until October, when the lowest point is reached. In this country, it is the experience of most hospital physicians, that with the changeable weather of March, April, and May, the cases of chorea applying for treatment greatly increase in number. Lewis's studies include a careful comparison of the number of attacks of chorea with the mean relative humidity, the mean barometer, the mean daily range of thermometer, and the amount of sunshine or cloud. There appears to be a slight "increase in the number of cases with a fall in the mean relative humidity and barometer tracings." The cold, moist months of December, January, and February, show a smaller proportion of cases than March, which has a higher temperature. There is a striking correspondence between the chorea tracing and that of the storm centres passing within a circle of 400 miles radius described around Philadelphia. The smallest number of storms occur in August; there is a rapid rise in the number until December and January. In February there is a slight fall, and in March the highest point is reached, after which there is an irregular fall until August. This seems the most interesting, as it is the most positive, fact brought out in Lewis's study of the seasonal relations of the disease, but, as he remarks, a storm is a very complex disturbance, and it is difficult to say which factor is the baneful one, or how it acts.

Special antecedent conditions.—*Temperament* plays an important rôle as a predisposing cause of the disease. High-strung, as we say, nervous children, members of neurotic families, are much more liable to the disease than others. The notes do not give exact figures in this matter, but the phrases "bright, excitable child," "always nervous," come often enough in the records to give a basis to the current opinion. In 59 instances, 14.3 per cent., there was a history of attacks of chorea in other members of the family. In only seven instances is it stated that the mother had also had the disease. In Case 162 the mother and grandmother had both been affected.

Mental conditions.—Psychical disturbance, in some form or other, is a prominent special condition determining the onset of chorea. Fright was given as the exciting cause in 76 cases, or 18.5 per cent. In a majority of these cases the statements seem clear and specific. Thus, to take at random from the list, here are some of the assigned causes of the fright: dogs (very common), house on fire, fright in a boat, burglar, father drunk, brother burned to death, etc. We could wish for more definite details, in many instances, as to the interval of time which elapsed between the fright and the onset of the symptoms. In a few cases the attack seems to have come on at once. Thus, R. R.,

¹ THE MEDICAL NEWS, October, 1882.

² Medical Age, June, 1887.

³ Loc. cit.

¹ Loc. cit.

aged seven; mother had chorea; was healthy until July 27th, when she cut her foot on a piece of glass and was exceedingly frightened. The choreic movements began at once, rapidly became general, and the speech was affected. The attack was severe, and lasted between two and three months. Oddly enough, just one year later, she returned with a second attack, which the mother said was excited by the peck of a duck.

More commonly there is an interval of one, two, or more days between the fright and the appearance of the movements; in very many cases the attack is simply *post-hoc*.

In twelve cases there was a history of injury preceding the attack, usually a fall. In two cases wounds of the fingers appeared to be the exciting cause.

Various other sources of mental worry or excitement are mentioned, such as "trouble at home," "a scolding master," a "cross foreman," "excitement of a revival meeting."

A really important factor is the strain of education, particularly in young girls during the third hemi-decade. Although in only thirty cases "overwork at school," "examinations," "worry about lessons," are given as exciting causes, I feel sure that in a much larger proportion the stimulation of school life is responsible for conditions which favor, if they do not actually precipitate attacks. Keen, active-minded little girls, from ten to fourteen years of age, anxious to do well at lessons, stimulated in their efforts by parents and teachers, form a large contingent of our cases. In London, Sturges has for some time studied this question with great care, and his papers on school-made chorea call attention to a serious danger in the forcing system which prevails so largely in our modern methods of education.

Reflex irritation is thought to influence in many cases the onset of chorea, but I have looked through the records in vain for a good instance. The presence of worms was noted in seven cases; in three it is distinctly stated that the expulsion of the parasites had no effect on the disease. The *chorée vermineuse* of some of the older French writers has no place in the Infirmary records. Perhaps certain of the cases which followed injury might be regarded as reflex in character. Jacob¹ has called attention to the important part which nasopharyngeal irritation plays in some cases of local chorea, particularly of the face. It is a point worthy of close attention.

Imitation does not appear to have influenced the onset in a single case. Trousseau and other French writers have laid stress upon this factor, which may prevail in institutions containing a large number of children, but in Dispensary practice mimicry need not be taken into account. In Mitchell's lectures will be found a graphic description of an epidemic of convulsive seizures, with choreiform movements, which affected the inmates of the Church Home for Children in 1880. In this instance imitation played a most important part in the extension of the disease.

Antecedent illness.—Naturally, in inquiring into the history of children, we have statements of the attacks of the various fevers and infantile disorders, but there is one special disease, *rheumatism*, which has long been known to have close associations with chorea, and

which, in this respect, takes the first rank. It is important to separate the cases with a clear history of articular disease from those with vague pains in the joints and limbs. In the records there are 63 cases, or 15.3 per cent., with rheumatism; I have included here all cases in which there was distinct articular swelling with heat and pain. Some of the cases were slight enough to be called subacute. We find two groups of cases, the one in which the chorea comes on with or follows immediately upon an attack of acute rheumatism, and the other in which the rheumatism antedates some months or years the onset of the chorea. In 31 cases the movements followed the arthritis, usually during convalescence. In some instances it was impossible to say which came first, and, indeed, there are cases in which the rheumatism follows long after the chorea. In 11 cases the rheumatism had preceded the chorea for periods of from two to twelve years, and did not recur before or during the attack. In a number of cases the chorea followed "some months" after the rheumatism and there was no joint trouble at the time of the onset. We may conclude from our records that about 15 per cent. of the cases show antecedent rheumatism, but in only 7.5 per cent. was the rheumatism immediately associated with the chorea.

To the lay mind rheumatism is a convenient term embracing many affections, and I do not place much weight on answers given to queries regarding the occurrence of rheumatism in the family, but it may be noted that in 49 instances the father, mother, brother, or sister had had this affection.

It is interesting to compare these Infirmary figures with those of the Collective Investigation Report of the British Medical Association. The percentage of cases with antecedent rheumatism was 26, but it is not stated in how many of these cases the chorea followed immediately upon the joint trouble. Our records show a much smaller percentage than in the majority of English or French statistics which are to be found in the special monographs and treatises.

As great care appears to have been exercised in this inquiry, I think the Infirmary records afford reliable information in this respect, and we may safely conclude that in more than three-fourths of all the cases there was no history of *articular* rheumatism. In 23 cases there were pains in various parts, sometimes described as rheumatic but not associated with joint trouble. Whatever may be their nature, it is important to separate these cases from those of true rheumatism with distinct articular swelling. It is quite possible that many of these cases are truly rheumatic, as the joint trouble in children may be quite trifling, yet, in going through the records it was found impossible to make any separation between cases in which the pains were truly rheumatic and those in which they were the vague so-called growing pains so often complained of by children. Assuming all such cases to be rheumatic and adding them to the 63 cases of positive rheumatism, it would raise the percentage to nearly 21.

Of other diseases, scarlet fever was an antecedent in 95 cases, or over 23 per cent. In a few cases the chorea followed or came on with a rheumatic complication of this disease.

There was a record of measles in 42 cases, and of whooping cough in 13, but doubtless less strict inquiry

¹ Amer. Journ. of Med. Sciences, 1886.

was made regarding these diseases. It is to be regretted that the notes were not more full on the question of whooping cough, as Sturges¹ states that this disease has more than double the frequency in choreic children than it has in others.

Other antecedents were anæmia, worms, marasmus, typhoid fever, malaria, chicken-pox, smallpox, and diphtheria, but the cases coming under each heading are too few for any practical purpose. Anæmia is more frequently, I think, a sequence than an antecedent, though in some instances there was marked pallor with failing health some time before the chorea began. There is at present in attendance at the Medical Dispensary of University Hospital, a case of chlorosis in which hemichorea developed while under observation.

Kinnicutt, of New York, and Kingsley² have written upon the possible association of chorea with malaria. There are five cases in which the children are stated to have had intermittent fever, but I cannot gather that there was any connection between it and the onset of the chorea.

ORIGINAL ARTICLES.

THE PATHOGENIC CONDITIONS OF ALBUMINURIA.

NEW EXPERIMENTS AND CLINICAL INVESTIGATIONS.

BY DR. MARIANO SEMMOLA,
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THE conditions which determine the passage of albumen into the urine should form the basis of any explanation of the mechanism of albuminuria in the different pathological conditions in which it occurs.

For some years the difficulty of finding a satisfactory explanation of the different kinds of albuminuria has been increased by the admission that there may exist a physiological albuminuria lasting for a variable period, which I believe I was the first to describe in 1875. (See Congress of Brussels.) But I believe that it is not correct to speak of a physiological albuminuria. It might, indeed, be understood in the sense that it may exist in individuals who walk about, eat, etc., like those in good health; but this is not proof that they have not some slight, perhaps transitory disturbance, which is really the cause of their albuminuria, so that we should not describe it as truly physiological. My researches for thirty years past have fully confirmed me in the opinion that albumen is not a principle which is intended normally to pass out of the living economy.

The relation of albuminoids to albuminuria is generally (except in certain kinds of albuminuria of renal origin) the same as that of glucose to glycosuria. In health both these principles circulate in the blood, and neither is intended to be eliminated. Whenever their quantity or quality becomes such that they are no longer suitable for carrying out their physiological purposes, they are eliminated or useless substances, foreign to nutrition. The evidence of this seems to me indisputable. Another fact sustains and enforces this view. In all cases of so-called physiological albuminuria the daily quantity

of albumen eliminated is very small, considerably under $3\frac{3}{4}$ drachms, or almost this amount, and this lasts for a limited or intermittent period only. In health no albuminuria of any duration has been observed, in which the daily quantity of albumen eliminated amounts to half a drachm, a drachm, or two drachms and a half, so that it follows that the mechanism of the so-called physiological albuminuria must necessarily be of the same character, as in that of disease. The pathological condition may be insignificant, incapable of producing appreciable consequences, but the presence of albumen in the urine, no matter how small the quantity, should always be considered as a morbid phenomenon, a functional disorder, for which a cause should be sought, and it may occur without any renal disease, as I have shown as far back as 1861.¹

In following out the admitted theories, I was led, in 1879 (see Congress of Amsterdam and *Revue Mensuelle de Médecine*, Paris, 1880), to study the passage of albumen into the urine in relation to the three factors which preside over the secretion of urine in the normal state, that is to say:

1st. Mechanical conditions of the circulation of the blood.

2d. Physico-chemical constitution of the blood.

3d. Histological condition of the kidney.

In preceding papers (see *Archives de Physiologie*, Paris, 1881, 1884, and *Bulletin de l'Académie de Médecine de Paris*, September 7, 1886) I have shown beyond question that as soon as the albuminoids of the blood became so changed in their chemico-molecular constitution as to be dialysable and unassimilable, they will be eliminated by the kidney.

Whether this foreign body be albumen derived from the food which from any cause whatever has not completed the chemico-molecular changes to fit it for fixation in the tissues, or an excess of chloride of sodium, of water, or of any poison whatever, either introduced from without or formed within the organism, it is all the same: the kidney is charged with removing it from the body, which remains normal because of this incessant removal. It is useless to seek for the cause of the passage of albumen in the greater or less porosity of the membrane of the glomeruli, or in the greater or less resistance of the glomerular epithelium (Leube). These hypotheses are gratuitous and quite at variance with good physiology. Indeed, that albumen is eliminated by the kidney because of its non-assimilability is proved beyond question by the fact that when we attempt to repair the loss of albumen by increasing the nitrogenous elements of the food, albumen becomes more abundant in the urine, because the increase in the albuminous load intensifies the vice of nutrition which occasioned defective assimilation of albuminoids.

I need not now discuss the pathogenic conditions of the great majority of cases of albuminuria. The principal object of this paper is to examine those conditions in relation to increased blood-pressure and histological alterations of the kidney, hitherto

¹ International Medical Congress, London. Transactions, vol. i.

² St. Louis Medical and Surgical Journal, 1881.

¹ Gazette des Hôpitaux, Paris, 1861, No. 101.

considered as the causes of albuminuria, deducing conclusions both from experimental pathology and from clinical observations.

Experimenting first on the mechanism of the circulation, the conclusion was reached that increased pressure in the glomeruli may cause albumen to appear in the urine. But contradictory results are not wanting, and it may be asked whether these do not lead to the conclusion that the experiments have not taken account of derangements not connected with mere change of blood pressure. This error too often occurs in the researches of experimental pathology, and we should always remember that when we experimentally produce a serious derangement in the relation of different functions, it is impossible to come to exact conclusions as to the true mechanism of the symptom which we wish to elucidate. Thus, for example, the ligature of the aorta (Robinson, Meyer, Munck, Senator, etc.) above the renal arteries, alone or in connection with a ligature of the coeliac and superior mesenteric arteries (Litten), produced in the former case albuminuria, while in the latter Litten did not observe albuminuria. Nor were the experiments more conclusive in which albuminuria was observed as a consequence of increased pressure throughout the entire vascular system, caused by injections of pure water (Mosler, Kierulf, Goll), because then another very powerful factor came into play, viz., the derangement of the physico-chemical constitution of the blood, principally as regards the chemico-molecular constitution of the albuminoids, of which a very slight amount may injure or modify the biological relations. So that there is at this time no experiment which can be considered as proving beyond question the hypothesis that increased blood-pressure is one of the causes of the passage of albumen into the urine, especially as this hypothesis has been advanced and received because of experiments, purely physical in their character, made with albuminous fluids and animal membranes under different pressures.

In the course of a long-continued study of albuminuria, I have been often surprised at its absence in a great number of cardiac cases observed at my clinic in which the conditions for a passive hyperæmia of the kidneys were most favorable, and my surprise was intensified when I found on autopsy that the kidneys were cyanosed, and that there was sometimes even an interstitial nephritis, whereas in other cardiac cases, with valvular lesions, venous stasis, dropsy, etc., in patients presenting the same clinical conditions as the preceding, albuminuria was present. Finally, a fact well worthy of note: in these last cases, when by means of treatment we succeeded in restoring the equilibrium of the circulation by controlling the irregular action of the heart, and the venous stasis, dropsy, etc., disappeared, there was at once a more or less considerable diminution in the daily amount of albumen eliminated, but it was never entirely absent. Evidently some other factor existed causing the elimination of albumen and this was the factor I sought to eliminate.

Following out preconceived ideas, some clinicians have explained these differences by alleging the co-

existence of a derangement of the renal circulation and an alteration of the epithelial cells, (see *Riforma Medica*, 9, 10, 11, July, 1887, clinic of Prof. Maragliano by his assistant, Dr. Livierato). This explanation much resembles that of porosity advanced by Leube, and, in order to admit it, it must be supported by a preliminary demonstration that the renal epithelium has a different selective affinity for albumen under different nutritive alterations. Without that, it is reduced to a mere hypothesis, and, for my part, I consider it inadmissible.

I have undertaken to reconcile the apparent contradictions by new investigations in experimental pathology, with a view to ascertain whether the blood-pressure alone can cause the passage of albumen into the urine. In order to do this, I had recourse to a very simple expedient, viz.: the transfusion of a certain quantity of blood from one animal to another of the same species, taking care to measure the pressure before and after the operation. It is evident that in this way we can effect an increase of pressure in the entire circulatory system resembling that observed in diseases, without producing serious functional derangement and thus complicating the experiment with other factors. The following is the result of my experiments.

EXPERIMENT I.—*April 12, 1887.* I took two dogs, the larger having a weight of 9.3 kilos., and the smaller 4.5 kilos. Before commencing the experiment the dogs were kept separate, each upon the same diet of bread, broth, meat, and milk. For three days an analysis of urine showed no trace of albumen and no morphological morbid element. The fourth day I firmly fixed the two dogs after the method of Bernard, and connected, by a transfusion apparatus, the carotid of the larger dog with the femoral vein of the smaller. Before opening the communication I took the blood-pressure of the smaller dog by the hæmodynamometer of Trauck, and found the initial pressure to be 29 mm. The blood was then allowed to pass for ten minutes. The hæmodynamometer went up, gradually to between 36 and 37. Fifteen minutes the hæmodynamometer remained steady at 33, the little dog, weighing 5 kilos., having gained 450 grammes in blood. The dog was returned to his kennel, and an assistant collected the urine as it was voided. The diet was the same as before the experiment. The animal voided 300 c. c. of urine in twelve hours. The urine was reddish, under the microscope hæmoglobinuria was observed, and there was a trace of albumen corresponding to the amount of blood in the urine.

EXPERIMENT II.—*April 18, 1887.* A very large dog weighing 15.4 kilos., and a small dog weighing 5.3 kilos. were used with the same precautions as in the preceding experiment. No albumen in the urine. Initial pressure of hæmodynamometer in the small dog was 29.30 mm. Transfusion for twelve minutes from the carotid of the large dog to the femoral vein of the small dog. The hæmodynamometer went up and stood between 41 and 42 mm. At twenty minutes after the transfusion the pressure went down and remained steady at 35 mm. After the experiment the animal weighed 5.950 kilos., having gained 550 grammes of blood. Half an hour after the experiment terminated the little dog vomited a thick, glairy, and sanguinolent liquid; weighed again, he had lost 105 grammes; within twenty-four hours he voided 550 c. c. of urine. Color sanguinolent, spec. grav. 1.007, albumen 1 in 1000. Under the microscope a considerable number of red globules appeared. There was evidently polyuria and hæmoglobinuria.

19th. The animal was depressed, weighed 5.2 kilos. He ate only meat soup, passed but 90 c. c. of urine, which was still more sanguinolent and contained many granular casts. Spec. grav. 1.032, albumen 3 in 1000, evidently arising as before, from the hæmoglobinuria.

20th. Forty-eight hours after the transfusion, the animal weighed 4.92 kilos. Urine for twenty hours 110 c. c., until 6 A. M. next day (death of the animal). Spec. grav. 1.030. Color, slightly reddish. Contained some blood globules and a great number of granular and granulo-epithelial casts. Trace of albumen. Refused all food and drink.

21st. Died sixty eight hours after the transfusion. The autopsy showed the kidneys slightly swollen, dark red on section; cortical substance engorged with blood with brighter red and some yellowish points. Liver engorged with blood; on section deeper red than normal. Heart showed slight hypertrophy of the left ventricle.

Microscopical examination. Hemorrhage at many points of the medullary and cortical substance both between the tubes and into the capsules of Bowman. In other glomeruli there was observed a slight dilatation of the vascular loops. In some capsules there was observed a small quantity of granular substance.

Epithelium of the tubuli generally normal, rarely the epithelium was wanting and a small quantity of a granular substance observed. In one tube a cast was seen, besides this the large vessels contained a granular mass.

This experiment was repeated with four other dogs with identical results. In two experiments I transfused only 250 and 280 grammes of blood. In the first the difference shown by the hæmodynamometer was 3 mm., the weight of the animal being 4.85 kilos. In the second experiment a difference in the hæmodynamometer of 2 mm., the dog weighing 5.3 kilos. In the last two experiments the microscope showed but few globules of blood, the color of the urine being normal, no appreciable albuminuria, microscopical examination showing but slight hyperæmia.

The conclusion to be drawn is clear. Increase of pressure in the renal circulation produces first polyuria, as Charcot has already shown, without producing albuminuria properly so-called, and a more or less considerable hæmoglobinuria, and perhaps, also, a true blood extravasation, corresponding to which there is present a certain quantity of albumen. The kidneys are always hyperæmic without alteration of the epithelium of the tubuli. The granular substance which is observed within certain capsules and tubes here and there should be ascribed to the blood which has been extravasated and altered for three previous days.

In order to make these experiments still more conclusive, I repeated them, on the one hand, using transfusion upon a little dog, and then trying on another dog an intravenous injection of defibrinated blood which I had drawn immediately after the conclusion of the former experiment from the large dog, already used for transfusion.

It is evident that in these new experiments I intended to reproduce the same mechanical conditions, that is to say, the same general increase of blood-pressure in the two smaller dogs, employing in the one case dead blood drawn from the artery and defibrinated by whipping, so that the same physico chemical conditions did not exist as in the living, and circulating blood transfused from the other dog.

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Experiment, May 1, 1887 (10 A. M.).

I took three dogs—

1st. A large dog, for transfusion, weight	22.600 k.
2d. Two other dogs, which I will distinguish as	
A, weighing	5.950 k.
B, "	5.900 k.

For four days the same conditions of uniform diet were followed as in the previous experiment. Urine normal, non-albuminous, except a slight opalescence, not susceptible of estimation, in dog A.

The following is the analysis of the urine twenty-four hours before the experiment:

	Dog A.	Dog B.
Urine,	500 c. c.	350 c. c.
Sp. gr.,	1.015	1.011
Reaction,	Acid.	Acid.
Color,	Straw.	Yellowish.
Appearance,	Slightly turbid.	Limpid.
Albumen,	Opalescence.	None.
Urea,	12.781 gr. per 1000	10.232 gr. per 1000

Transfusion was effected from the carotid of the large dog into the femoral vein of dog A. Initial pressure in the carotid of dog A, before the transfusion, 27 to 28 mm. After five minutes of transfusion the pressure oscillated between 34 and 35. The operation was stopped, the weight of the animal found to be increased 410 gr. An hour after the operation the animal voided 85 c. c. of urine, sp. gr. 1.013, albumen; opalescence greater than before the operation. Three hours later he again voided 100 c. c. reddish urine, sp. gr. 1.011; slight hæmoglobinuria, a trace of albumen.

While waiting there had been drawn from the same carotid of the large dog nearly half a kilogramme of blood, and having defibrinated it by whipping, 350 gr. of it were injected into the external saphenous vein of dog B. Initial pressure in the carotid oscillated between 27 and 28 mm. The injection was made slowly, the operation lasting ten minutes. After the intravenous injection the hæmodynamometer marked 31 to 32, and remained there. Animal weighed 6.250 k.

An hour after the injection, 70 c. c. urine voided, containing 0.50 c. c. of albumen; color nearly normal. Under the microscope a few scattered red blood-globules. During the two hours following the injection the animal three times vomited the milk, soup, and bread which he had previously eaten.

In order to compare more readily the experiments I have placed in the following table the results of the analysis of urine during forty-eight hours after.

May 2.

	Dog A (transfusion). [Ate during the 24 hours nearly half his food, meat, broth, bread, milk]	Dog B (injection). [merely drank the broth, refusing the rest.]
Weight	5.820 k.	5.500 k.
Urine in 24 hours	390 c. c.	180 c. c.
Sp. gr.	1.014	1.023
Reaction	Neutral.	Alkaline.
Color	Reddish yellow.	Bright yellow.
Appearance	Slightly turbid.	Slightly turbid.
Urea per m.	14.881 gr.	15.431 gr.
Albumen per m.	0.50 gr.	8.100 gr.
Microscope	{ Large number of red globules; epithelial cells; no casts.	{ A few scattered red globules; epithelial cells; no casts.

May 3.

	Dog A. (Eats very little.)	Dog B. (Refuses all food and drink.)
Weight	5.350 k.	5.065 k.
Urine in 24 hours	255 c. c.	190 c. c.
Sp. gr.	1.929	1.020
Color	Reddish yellow.	Dark yellow.
Reaction	Acid.	Neutral.
Appearance	Slightly turbid.	Quite turbid.
Urea per m.	22.190 gr.	14.260 gr.
Albumen per m.	0.65 gr.	12.50 gr.
Biliary pigments	Trace.	A notable quantity.

	Dog A. (Eats very little.)	Dog B. Refuses all food and drink.
Microscope .	{ Many red globules; epithelial cells; a few hyaline casts.	{ Hyaline and granu- lar casts; epithelial cells colored yellow; a number of fresh bacteria.

Dog A, strength feeble, yet stood up. He was killed on the morning of May 4.

Dog B, had been all the time very dull, and was found dead at 7 A.M. May 4.

The microscopical examination of the kidneys of dog A gave similar results as the first experiment, but less in amount, and more limited in character.

The microscopical examination of the kidneys of dog B showed diffuse hemorrhage everywhere. In the tubuli of both the medullary and cortical substance true casts were seen, some quite large. In other tubes some epithelial necrosis was found. In the glomeruli the epithelium was in rather good condition. There was an accumulation of a granular or grumous substance, and its behavior with acetic acid and picro-carmin led me to believe that it was an albuminous substance which, after traversing the glomerulus without undergoing any appreciable alteration, had passed into the tubuli, where it had coagulated, forming casts. As a consequence, in some tubuli the epithelium was found to be more or less altered.

From these experiments conclusions can be clearly drawn. On the one hand, they show that in consequence of transfusion and simple increase of blood pressure there is no passage of albumen, and that, on the other hand, a death of the circulating albuminoids is sufficient so to change their physico-chemical constitution that they become a foreign substance to be totally eliminated, although the blood pressure was less than in the transfusion experiments.

Another fact naturally presents itself, and again proves what I demonstrated several years ago, namely, that the functional strain that the kidney must undergo in order to eliminate useless albuminoids sets up secondary irritative action that simple blood extravasation does not. This is shown clearly in the histological changes in the kidney of dog B compared with the almost normal condition of the kidneys of dog A, excepting the mechanical hyperæmia and the presence everywhere of red globules.

In order to complete these experiments I had yet to clear up a doubt which had arisen in my mind with regard to those cardiac diseases associated with albuminuria, in which after an improvement in the circulatory mechanism by proper treatment, there was a considerable diminution but not a complete disappearance of albuminuria. This had led me to believe that if the increase of blood pressure alone was incapable of effecting a filtration of albumen we still might suppose that it was capable of sensibly increasing it when another fundamental, pathogenic condition preëxisted, namely, the dyscrasic condition of the albuminoids, or, as may be said, the pressure of a large quantity of dialysable albumen in the blood stream which ought to be forcibly eliminated as incapable of playing its part as an assimilable substance, and on that account foreign to the organism.

I believe that I have succeeded in demonstrating

in a very conclusive manner the hypothesis which I had conceived.

I took a dog weighing 8.3 k. and put him under observation on a diet of broth, meat, and milk soup for three days together to assure myself that the urine was normal and free from albumen. I commenced subcutaneous injections of 60 grains of white of egg diluted with 20 grains of distilled water, dividing this dose into four injections during twenty-four hours. After a few hours albuminuria became manifest, and the amount of albumen eliminated in twenty-four hours increased slowly. Ten days after the injection the animal voided 3.51 grains of albumen during twenty-four hours.

I effected a transfusion of blood into this dog from a larger dog under conditions similar to those of the experiment of May 1st. The urine of the large dog was quite normal and without albumen. Initial pressure in the carotid of the albuminuric dog before transfusion 28 to 29 mm. Transfusion lasted eight minutes, pressure oscillated between 35 and 36, becoming steady at 34. Animal weighed after transfusion 8.85 k. gaining 5.5 grains of blood. In the urine collected during twenty-four hours after the operation, there was found 620 grammes of albumen, nearly double what the albuminuric dog had voided before the transfusion.

This clearly proves that when there already exists in the blood, as I have before stated, a certain amount of albuminoid principles, which, by their physico-chemical constitution are not assimilable, the increase of blood-pressure increases filtration in an almost mechanical manner, in the same way as occurs when water produces polyuria. In this phenomenon the renal filter is passive, and the experimental results fully confirm the hypothesis which I had put forward to explain—the phenomena of albuminuria persisting in cardiac cases after the restoration of the vascular equilibrium. But in practice another thing may happen. When we put these cardiac patients under a treatment of tonics, and of remedies which regulate the heart, and at the same time on a vigorous milk diet, then the albuminuria totally disappears, because with the curative action of the change of blood-pressure, there is also a reconstructive action of the albuminoids of the blood under the influence of the milk diet, due, doubtless, to the truly enormous assimilability which occurs in derangements of nutrition.

It now remains to finish the second part of my work, that is to say, to determine the influence which alterations in the renal filter may have on the albumen of the urine. In order properly to judge of this question, it will be sufficient to recall the numerous clinical cases in which there is not the slightest trace of albumen in the urine during life, while the autopsy shows the existence of a nephritis, principally interstitial, but coexisting with an epithelial lesion. There is not an observer who has not recorded many facts of this kind. It is evident that if nutritive alteration of the epithelium of the renal filter were necessarily the cause of albuminous filtration, the exceptions just cited could not occur, but experimental pathology may to a certain extent clear up this question. For this reason I have repeated the experiments already made by others, especially to determine the relation between the degree of histological renal alteration and the quantity of albumen eliminated. The substance which I have em-

ployed is cantharidine. I produced poisoning, both acute and chronic.

In acute poisoning, produced by injecting under the skin of a hog of medium size (5.14 k.) a solution of cantharidine in glycerine (4 parts glycerine to 5 parts cantharidine), the urine at the end of an hour became sanguinolent, and contained 0.55 of albumen per m. The animal died in three hours. At the autopsy the cortical substance was found swollen and congested. The glomeruli much changed. In some of them the lining epithelium was partly gone, so that half of a glomerulus was still invested with epithelial nuclei, while the other half was transformed into a fibrous mass without nuclei. Lymphatic cells were found in the glomerular cavity with a granular substance, and red blood-globules in great number. As to the tubuli, there was found in their interior an amorphous substance (a product of exudation according to Cornil), and in some places there was a preliminary stage of epithelial necrosis.

Chronic poisoning by cantharidine is still more significant. For three weeks I carried on subcutaneous injections of cantharidine in dogs of about the same size. The daily dose was $\frac{3}{10}$ of a grain. The urine, slightly sanguinolent, especially during the first few days, never showed more than 0.70 to 0.85 gr. per m.), a certain quantity of which related to the exudation of blood due to the inflammation. After three weeks the renal alterations were more considerable. Besides the glomerular alterations already mentioned, relating to the very marked inflammatory action in some places, there was considerable alteration of the tubuli. The epithelium was flattened, and in the lumen of the tube there was found a hyaline substance (exudate). In some places the epithelium of the tubuli had a granular appearance. In other places the convoluted tubes showed cells undergoing granular, fatty degeneration.

Comparing these alterations with the very slight quantity of albumen contained in the urine, it is evident that there is here not only a passage of albumen, pure and simple, but a filtration of serous fluid from the blood, due to the inflammatory condition of the kidney, which is not at all the same thing, and which clearly explains the small quantity of albumen in the urine, while on the contrary, in true albuminuria, characteristic of Bright's disease, there is a considerable quantity of albumen given off in twenty-four hours, at a period of the disorder when the histological alterations of the filter are high, compared with those produced by cantharidine poisoning, though this latter has a degree of albuminuria much less; and to be exact, we must say that this albuminuria is not the albuminous filtration, pure and simple, observed in some diseases, principally in Bright's disease. It is on the contrary, one of the effects characteristic of all inflammatory action.

The final conclusion from these investigations is that the fundamental pathogenic conditions which produce elimination of albumen by the kidney is the dyscrasia of the albuminoids, or, in other words, the peculiar alteration in their physico-chemical constitution which makes them unsuitable for assimilation, and consequently forces them to be eliminated by the emunctories and particularly by the

urine and the bile. It is evident that albuminocholia only occurs when there is a condition of dyscrasic albuminuria.

The two other conditions which relate to urinary secretion are not capable of effecting the passage of albumen from the blood through the renal filter, because in their perfectly normal constitution the albuminoids of the blood are not intended to leave the organism, as stated at the beginning of this paper. This is an error of physiology produced by the exaggeration of a purely anatomical point of view. The other factors in the urinary secretion, that is, increase of blood-pressure and histological alterations of the glomeruli and tubule, play an entirely secondary part, and are not concerned in the true albuminuric pathogeny, because the change of pressure occasions albuminuria only when it already exists by reason of a dyscrasic condition, and the histological alterations brought about by inflammatory action necessarily give rise to that slight elimination of albumen which characterizes all inflammatory exudations.

The practical conclusions to be deduced from these investigations are as follows:

1. We should absolutely give up the idea still current in practice that albuminuria must always coexist with nephritis. The most frequent case of chronic albuminuria is that in which albumen filters through the kidneys because of defective assimilation of albuminoids.

2. We must abandon the idea still held by many, that we can supply the loss of albumen by a highly nitrogenous diet, because this can only increase the albuminuria, the overloading of the organism with nitrogen only augmenting the defective assimilation of albuminoids. On the contrary, as soon as albumen is seen in the urine we should at once have recourse to a milk diet, which in a few days is sufficient to cause the albumen to disappear, or at least to decrease considerably.

3. We must banish astringents of every kind in treating albuminuria, especially that of Bright's disease, because we must recognize that the elimination of albumen by the urine is for a definite and necessary purpose, and that by reason of this incessant effort the organism maintains its integrity. The use of gallic acid as an astringent has happily done neither harm nor good, because it was based upon a pharmacological error, for gallic acid is not an astringent, but we still find that certain very powerful styptics, like the preparations of lead and iron, which are unquestionably injurious to patients, are recommended, and I have often found their effects to be very dangerous, aggravating the principal disorder where they succeed in diminishing the filtration of albumen by their action on the capillaries.

THE TREATMENT OF THE FINAL STAGES OF PHTHISIS.¹

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The treatment of phthisis is of the most intense interest to the busy practitioner. No discourses in

¹ Read at the meeting of the American Climatological Society, Baltimore, 1887.

medicine are received with more avidity than those which detail a new method for the treatment of consumption, or hurl forth a new specific for its cure. The reason is obvious. But it is quite true, also, that a very large, indeed, too large a share of the monographs deal with the incipient stage of phthisis, and leave the treatment of the final stage to be evolved from the more or less limited experience of the practitioner. In fine, it is too often forgotten that we must alleviate suffering as well as cure disease. The burden of the subsequent, without a doubt most trite, remarks applies to the treatment of the final stage. Neither the first, nor the second, nor the third stage in its entirety, will be considered; only that portion of the third stage which precedes the finale. The racking torment of the beginning has passed; the dreadful anguish of the middle period is gone; the third period is fast waning, and that slowly creeping march of suffering and forbearance, filled with the inspiration of hope, has begun, to end only in the grave.

What are we to do in these final hours of suffering? Are we able to meet the demands upon us? Is the profession sufficiently taught to administer to the comfort of these afflicted ones? In vain does one look to the monographs and journals for suggestions; no words are uttered in the lecture-room; for aught we gather from medical literature the care of the patient dying of phthisis devolves entirely upon the nurse. Those of us who are hospital physicians alone can scarcely appreciate the mental anxiety and emotional distress of him who daily administers to the wants of a patient, too often a friend, dying of this disease. It is easy for the *chef* to leave such duties to the interne or the nurse. Quite different, however, for the family practitioner. In these cases above all others the powers of the true physician are beautifully displayed. Here it is that the exercise of the high and holy qualities typified of old by the Master Physician are essential.

Yet, withal, a thorough knowledge of therapeutics is required for the pain that is here, and the ache that is there; for the cough of to-day, and the laryngeal spasm of to-morrow; for the dyspnoea of manifold causes; for the vomiting in the morning and the retching at night; for fever and sweating; for wakefulness and sleep; for the thousand and one ills—to relieve which the physician must have a mind fertile of expedient, and abundant of resource.

The suggestions regarding the management of the late stage of phthisis are derived alone from the writer's personal experience; much more profitable though it would be, time prevents detailing the experience of others.

External symptoms.—For the relief of erythema from pressure and moisture, remove the cause, if possible, apply astringent lotions and drying powders. The extract of hamamelis diluted, or the aqueous extract of the shops; borax and alcohol; the latter alone; sulphate of zinc, twenty grains to a pint of water; alum and water; carbolic acid (ten drops) in water (Oj); or alum and alcohol carefully applied, is grateful and remedial. Starch, rye flour, fullers' earth, oxide of zinc, subnitrate of bismuth, iodoform and starch, are drying powders, named in the order

of cheapness, that are efficient. For painful erythematous, iodoform, oxide of zinc, and subnitrate of bismuth with starch in combination, answer well.

Iodoform	.	.	.	.	.	.	1 part.
Zinc	.	.	.	.	.	.	2 parts.
Bismuth	.	.	.	.	.	.	2 parts.
Starch	.	.	.	.	.	.	4 parts.

A saturated solution of iodoform in ether, applied every day, or every other day, seems to relieve pain and remove congestion. A mixture of iodoform and surgical collodion relieves pain quickly. One must not forget the conventional soap-plasters, while glycerine, applied frequently, is also of service. Ointments of iodoform, or of zinc, with the extract of opium or belladonna, are often necessary. For bed-sores remove pressure, and apply, by dusting, iodoform, Peruvian bark, oxide of zinc, or subiodide of bismuth. Oakum saturated with balsam of Peru is often excellent. Surgical principles will guide in the treatment of exceptional ulcers.

Oedema of the legs is frequently most distressing; bandages and elevation of the limbs are required. The swollen legs are the seat of a very painful erythema; here again, sedatives, as laudanum, and lead water, or hamamelis, are required. One of the easiest prepared and most soothing applications for any oedematous erythema, is the so-called starch poultice; ordinary starch mixed with water to the consistency of thick cream, spread on linen, and applied.

Apart from the usual pains in the thorax, the patient suffers from general aching and soreness, and from local areas of pain. Rubbing with stimulating applications, alcohol, soap liniment, arnica, chloroform liniment, or with dry heat or applying hot flannels, are necessary. Local pains may be relieved if in the course of the nerves, or in the extremities, or where undue pressure has been exerted, by *cannabis indica*; laudanum may also be used, but is inferior in value; lanoline is a good vehicle for any substance. Plasters are not generally pleasant; belladonna, opium, and soap may be selected.

Chest pains are usually severe. Use dry heat, by means of hot cloths, hot plates, or hot water bags, or sinapisms, or rubefacient liniments. Pain in the epigastrium and about the heart often occurs in the last week, and is most horrible; dry heat is the most serviceable of external applications. The pain appears to be due to tension on the adherent pleura by collapsing or contracting cavities. The secret of success in the treatment of the general and local pains, is the ability to ring the changes on various articles; the wrought-up nervous system, conjures up, or intensifies pains, which require an agile mind to relieve.

Gastro-intestinal symptoms.—For the dry, parched, or fevered lips, use cold cream; camphorated or benzoated oxide of zinc; camphor water and glycerine, with or without borax, or boracic acid; or even glycerine alone, may be used. An erythematous stomatitis is often present; demulcents are required. Decoctions of marsh-mallow, or gum arabic, are soothing; morphia, or the syrup of poppies in a demulcent, relieves the burning distress. The slippery elm

bark of boyhood days, chewed, furnishes a soothing coating to the mucous membrane. The burning that attends erythemata may be relieved by allowing bits of borax to di-solve in the mouth, or by applying boracic acid locally. Ten grains of the latter to a half ounce each of water and camphor water are sufficient. Alkaline waters iced are grateful.

For ulcerative stomatitis and thrush, phenol sodique, Dobell's solution, and Listerine, either of them well diluted, are detergent, and often soothing. If the ulcers are few, iodoform in ether touched on them will quickly heal. Boracic acid and camphor water in distilled water is a cooling mouth-wash; myrrh is commonly used by the laity. Alcohol in water can be used; a solution of the bichloride of mercury (1 : 1000) in iced water seems to be cleansing. Flatulency is a most distressing cause of suffering. External applications of heat, dry or moist, are required. The aromatic spirits of ammonia, spirits of chloroform, Hoffman's anodyne, brandy and lime-water, creasote and charcoal in pill, with or without pepsin, or a mixture of carbollic acid, tincture of cardamom, bicarbonate of soda, with mint water, most frequently relieve it. The recent preparations of pepsin, and pancreatin, are of inestimable value. A bitter before eating, with or without an alkali, prevents a succeeding flatulency: either *nux vomica*, gentian, and quassia.

Vomiting arises from laryngeal irritation, from cough, from exhaustion, from local gastric irritation, by food undigested undergoing fermentation. Remove the laryngeal irritation by the local application of astringents and anodynes, by glycerite of tannin with or without morphia, or by astringent and anodyne lozenges. The vomiting of food by cough is prevented by administering morphia half an hour before meals, or by taking deodorized tincture of opium before the meal. The vomiting that occurs after rising is often prevented by taking some stimulant with nourishment, before assuming the erect posture: sherry and egg, or milk and brandy. The vomiting and retching that occur from excessive coughing is to be relieved by the anodyne that checks the cough; the more simple the anodyne the better; minute doses of morphia, if not contraindicated, are the best. The vomiting of exhaustion is controlled by stomachics, as quassia, or gentian in infusion; by stimulants, as champagne, brandy, and aromatic spirits of ammonia. Vomiting due to local irritation and congestion, caused by undigested and fermented food, is relieved by antifermentatives: carbollic acid, creasote, bismuth and charcoal; by artificial aids to digestion, by the use of peptonized or pancreatized foods; by alkalies, as iced lime-water, or Vichy water, which act as local sedatives; by carbonic acid water, the effects of which are sedative. The stimulating effect of a sinapism, or the sedative effect of a blister, must be invoked by their respective indications. It must not be forgotten that lying on the right side increases the tendency to vomit, lying on the other side having an opposite effect.

Pain in the epigastrium, a most common symptom from flatulency, from an irritated congested stomach, from a diaphragmatic pleurisy, is to be met by treating the respective causes. A gastric sedative, as

subnitrate of silver in pill before meals, with a minute dose of opium, prevents the pain that ensues after food.

Diarrhoea, if colliquative, may be controlled by stimulants, as burnt brandy, ammonia, or camphor; if tubercular, by large doses of astringents. Bismuth, from thirty to sixty grains in each administration, has served the writer as well as any combination of drugs. Logwood is a most valuable astringent, the fluid extract being used most frequently.

Intestinal flatulency is often the cause of diarrhoea, and can be prevented by salicylic acid, by antifermentatives, and by pancreatin. The diarrhoea that follows immediately on taking food is treated by an opiate; preferably, deodorized tincture of opium in small doses, five to ten drops, or the powder one-twelfth of a grain, with silver or bismuth, before meals. A septic diarrhoea ensues also in the last stage, and is to be checked by salicylic acid, by naphthol, or other forms of the naphthaline series recently introduced into therapeutics. The diarrhoea of amyloid diseases can only be controlled by opiates.

To relieve the cough of the last stage is most difficult. Dryness of the upper air-passages is most distressing, and local applications are generally painful. By the aid of a mirror, suitable remedies, always demulcent in character, can be applied to the congested areas about the larynx and epiglottis. Glycerine applied with a brush relieves the dryness; Dobell's solution thus applied is of service. The applications must be made often to the dry areas. Listerine with glycerine is of much value. Inhalations of terebinthinated vapors, or of simple aqueous vapors, are most grateful. The simplest form of inhalation is the best. We frequently have generated the vapor in a sick cup, covering the top and inhaling by the mouth-piece. The ineffectual efforts to cough can be aided by hot water, by hot water and brandy, and by the aromatic spirits of ammonia well diluted. Hydrocyanic acid has never been of any service in my hands for cough, while opiates are to be used with caution. A moderate dose of morphia may produce serious, even fatal symptoms. Codeia has disappointed the writer. Hyoscyamus and belladonna frequently add to the distress by producing dryness of the fauces; to relieve the dyspnoea, our utmost efforts are in demand. Ammonia, alcohol, Hoffmann's anodyne, and draughts of hot water are required in turn; external heat contributes to the relief. One of my professional friends says he has seen the air-hunger relieved by *quebracho*. Inhalations of oxygen should be theoretically of much service; the writer has never used them. The patient must be supplied with fresh, cool air, a source of relief to the distress. Attacks of dyspnoea, of course, are increased by flatulency, and this complication must be removed.

Hemorrhage in the last stage is usually profuse. A knowledge of the pathological anatomy of the lung at once shows the futility of astringents. Rest and opiates are essential, stimulants may be required; ice or cold cloths over the chest are imperatively demanded if it persists.

Laryngeal and faucial tuberculosis increases the distress of the patient. As long as feasible, cocaine

to render the taking of food possible must be applied to the ulcerated pharynx and larynx. Insufflations of morphia alone, or with iodoform and starch, must be practised, and over the larynx frequent fly blisters applied. One-eighth to one-quarter of a grain of morphia, with one grain of iodoform and three of starch, insufflated, or added to treacle and retained by the patient as long as possible in the larynx, gives much relief.

In the late stage of phthisis some means must be used, but not as imperatively as in the earliest stages, to combat fever. Quinine frequently aggravates nervousness, and is inadvisable. The salicylate of sodium, doses of five grains, guarded with a drachm of whiskey, every three hours, is a reliable antipyretic. It is also of much service after the manner of administration by Jaccoud. The general restlessness and nervousness which ensue at this period of phthisis must be prevented or allayed by quiet in the surroundings, by free access of pure air, by the administration of light liquid food only, and by the use of stimulating anodynes, preferably Hoffmann's anodyne; for a similar purpose, valerian and asafetida, by the mouth or rectum, or, if practicable, musk can be used; they are of much value. Gentle frictions allay restlessness, while ministrations with soft voice and gentle action allay an easily perturbed nervous system. By means akin to these, we can truly administer to the sufferings of our patients. It is quite certain, however, that the firm voice, the truthful countenance, the inspiring touch, sustain and soothe in this trying passage through the valley of the shadow of death.

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ON THE EARLY LOSS OF KNEE-JERK IN DIPHTHERIA.¹

BY R. L. MACDONNELL, B.A., M.D.,

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Nor long after the recognition of diphtheria as a distinct disease, it was observed that certain definite nervous symptoms made their appearance shortly after recovery, and one by one these were carefully studied until we soon came into possession of the knowledge of a certain definite group of nervous phenomena to which the comprehensive title of diphtheritic paralysis has been given. Of this group the most commonly observed symptoms, the paralysis of the veil of the palate, of the laryngeal, of the orbital and ocular muscles, and of the heart, have long been recognized, as well as sensory disorders of various kinds. Such nervous sequelæ occur after all the exanthems, but as very rare events, while so frequently do they follow diphtheria that it is no great exaggeration to say of a case that the non-occurrence of paralysis throws a shade of doubt upon the original diagnosis of diphtheria.

This frequent occurrence of post-diphtheritic paralysis is a characteristic feature in those forms of the disease met with in Montreal. Of the eighteen severe cases on which the statements of this paper

are based, the nervous system was to our knowledge distinctly attacked in 5, or 27.7 per cent., and of this number two died of sudden heart failure, and though the number of cases cited is small and scarcely sufficient to enable a just comparison to be made with the statistics furnished by others, yet the difference is remarkable when we consider that the proportion given by Roger is 17 per cent., by Sanné 11 per cent., and by Monckton 1.15 per cent.¹ Let it be remembered, however, that two great fallacies come into play, firstly, the diagnosis of the original disease—Was it real diphtheria?—and secondly, were the cases followed up after they left the hospital, the period in which diphtheritic paralysis was likely to develop.

Making all allowance, it is still evident that among hospital cases, in true diphtheria, paralysis is a much more common event than is generally supposed, and this has been made more evident by the observation of Dr. Buzzard in 1882, that Westphal's knee-jerk phenomenon was absent in that form of paralysis commonly called diphtheritic, and by the further observation of Bernhart (Virchow's *Archiv*, Bd. 99), that loss of knee-jerk may precede the other symptoms, and may even occur without any other indication of nerve implication, in short, that absent knee-jerk may alone point to a preëxistent diphtheria, so that a diagnosis of tabes dorsalis might readily be made, especially if, as is, indeed, often the case, the eye symptoms from diphtheria happen also to be present.

The object of this paper is two-fold—firstly, to add some evidence in favor of Bernhart's observation, and secondly, to show that loss of knee-jerk occurs with the earliest symptoms of the disease itself, and coincident with the very first appearance of the throat affection.

The cases on which the following observations were made, were all hospital patients. To avoid possibility of doubtful diagnosis, all private cases have been excluded from consideration. Each hospital case was seen by medical men besides myself, and was considered of sufficient severity to be placed in the infectious block of the hospital, and these hospital cases were all my own. I did not borrow any from my colleagues. Then, again, of the cases admitted, three of doubtful diagnosis have been excluded. Thus, during the last six months eighteen cases have been under my care. Of these knee-jerk was absent on the day of admission in 10 and present in 8.

Loss of knee-jerk may precede other nervous phenomena, and be the means of enabling a diagnosis to be made of the nature of the previously existing throat affection. Here is an illustration:

A boy, aged fourteen, previously strong and healthy, returned home from the country, where one of his young friends had died of a sore throat. There were at his home four children, three girls and a boy, aged eight to sixteen. On the day of his return the patient looked somewhat anæmic, and complained of feeling weak, owing to the effects of the quinsy he was reported to have had. There was a slight

¹ A paper read before the Canada Medical Association, August 31, 1887.

¹ Ross: Diseases of the Nervous System.

discharge from the nose, but nothing to point to the preëxistence of diphtheria but the absence of knee-reflexes. Isolation was attempted, but too late, and three of the four children took the disease. The patient eventually suffered from very great debility and regurgitation of food, the voice became nasal and recovery was long delayed. The knee-jerk did not become normal for four months. The sisters went to the hospital, where one died, the other two lost the knee-reflex immediately, and subsequently had diphtheritic paralysis.

Now, here was a case in which loss of knee-jerk enabled a definite opinion to be formed as to the nature of the so-called quinsy. Such knowledge might be put to practical use in the prevention of infection, though it availed little in this particular instance.

The cases of the two sisters of this boy show that loss of knee-jerk may not only be the first evidence of diphtheritic paralysis, but that it may continue for a lengthened period as the only evidence of that condition. Both these girls, aged nine and sixteen respectively, took the disease immediately after the return of their brother, and both had very severe attacks of the throat affection. In June last, though both had well recovered, yet in both of them the knee-reflex was absent, no other nervous symptoms being present.

Knee jerk in many cases of diphtheria is absent from the very first day of the illness.

In ten of the eighteen cases the knee-jerk was absent on the day of admission to hospital. In the family above mentioned the two girls were admitted to hospital as private patients, in both knee-jerk was absent on admission, and in both paralysis occurred to a limited degree, in the elder one, aged sixteen, taking the form of general muscular debility, with regurgitation of food.

In the case of a French Canadian boy, of seventeen, admitted March 24, 1887, with severe pharyngeal diphtheria, knee-jerk was absent on admission. The three brothers of this patient had also had diphtheria, and in all three paralysis had occurred. Four months after admission, knee-jerk was still absent, and other paralytic symptoms had made their appearance.

It seems probable that early loss of knee-jerk usually indicates the advent of other paralytic symptoms. Thus, of the ten cases in which the knee-reflex was absent, two died, four developed nervous symptoms while in hospital, and of the remaining ones no satisfactory report could be obtained of their condition after they had left the hospital.

But of the eight patients whose knee-jerk was unaffected, paralysis appeared in one, two died, and of the rest no history could be obtained.

Of the causes of death of the two children with lost knee-jerk, one died from laryngeal implication, for which I opened the trachea, and the other of sudden heart failure at a time when other symptoms were abating, while the deaths amongst those with normal knee-reflex were due in both cases to spread of the false membrane to the larynx.

In one of the cases in which there was no loss of knee-jerk at the outset, and in which the growth of

false membrane in the pharynx was very extensive, accompanied by very great swelling in the neck, the knee-jerk became lost in the third week of the illness; and at about this time great irregularity of the heart was noticed, and a systolic murmur at the apex was perceptible for some days. Regurgitation of food, loss of accommodation of the eye, and general debility followed. A week ago we were obliged to feed him with the stomach tube, death by starvation threatening on account of the paralysis of deglutition.

In two cases diphtheria was accompanied by a rash, knee-jerk was absent in both, and diphtheritic paralysis appeared in one.

Of two children, brother and sister, admitted on the one day, the brother died of severe laryngeal diphtheria, knee-jerk being present, the sister, in whom it was absent, lived several days free from laryngeal symptoms and doing well, but died suddenly of heart failure.

The conclusions, therefore, to which this observation leads us, are as follows:

1. In a considerable number of cases knee-jerk is lost from the first beginning of the disease, and thus affords a valuable means of diagnosis of the nature of the throat affection.
2. That loss of knee-jerk is the first evidence of the disease having attacked the nervous system.
3. Absent knee-jerk has no influence on the prognosis.

HORNY GROWTH OF THE PENIS—TWO MORE CASES.

BY J. F. BALDWIN, M.D.
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IN the issue of THE NEWS of August 6, 1887, is an interesting report of a case of horn of the penis, by Dr. J. H. Brinton, with additional references to fifteen other cases—all he could find. I am able to add to his list two cases, one occurring in my own practice.

CASE I.—E. J., aged nineteen, consulted me October 28, 1885, on account of epilepsy. I found he had a tight congenital phimosis, upon which I operated. At the time of the operation I noticed on the under surface of the removed portion of the foreskin, and also on the corresponding side of the glans penis, a soft warty growth, having a sabulous feel. I made no attempt to remove this growth, which I supposed was the result of lack of cleanliness and consequent irritation.

This wart rapidly developed into a veritable horn, and at the same time nearly the entire remaining surface of the glans penis became covered with two horny plates, which encroached seriously upon the meatus. January 5, 1886, I removed the horn, with a liberal slice of normal tissue at its base. The horn had then attained a length of nearly an inch. The cut healed by granulation, but the horn returned, and having by this time reached annoying proportions, was again removed, October 3, 1886. At this operation I thoroughly cauterized the seat of growth with acid nitrate of mercury, and there has been no return. The horny plates I removed at subsequent

operations, using the caustic also as before, and the penis is now in good functional condition, though somewhat scarred.

The boy stated, and I have every reason to believe his statement, that he had never been exposed to any venereal disease. He had no return of his epileptic fits for several months after the circumcision.

CASE II.—The *Journal of Cutaneous and Venereal Diseases*, of about a year ago, contained a note, taken from the *Indian Med. Gazette* for January, 1886, of "a Hindoo, aged sixty, who had had gonorrhœa, followed by phimosis, fifteen years ago. Circumcision had been performed, in consequence of preputial irritation, eight months previously, and the growth had developed since then. There were two well-marked horny projections growing from the corona glandis, and the surface of the glans was covered with a cap of similar material. Amputation of the glans, including the growth, was performed with satisfactory result."

This case bears a striking resemblance to that of Dr. Brinton, in age of patient, character of growth, and treatment instituted.

MEDICAL PROGRESS.

SOME POINTS IN THE TREATMENT OF TYPHOID FEVER.—BOUCHARD endeavors to secure intestinal antiseptics in typhoid fever by the administration of

Powdered vegetable charcoal	100 parts.
Iodoform	1 part.
Naphthalin	5 parts.

which is to be mixed with 200 parts of glycerine and 50 parts peptone; this forms a semi-liquid black mass which is absorbed in twenty-four hours, of which a spoonful may be given in a third of a glass of water every two hours. The large intestine is to be cleansed morning and night by an enema of carbolized soap, 1 to 100, each enema containing $7\frac{1}{2}$ grains of carboloid acid in a pint of water. Baths are also given, their temperature being two degrees less than that of the patient at the time, reaching finally a temperature not below 86° F. Quinine is the antipyretic preferred. Free feeding is also a feature of the treatment. The results of the disease, under this treatment, have been a mortality of from 7 to 11 per cent.; the average duration of the disease being nineteen days.—*Revue de Thérapeutique*, September 15, 1887.

TUBERCULOUS PLEURO-PNEUMONIA; PNEUMOTOMY; RECOVERY.—CASINI reports, in the *Rivista Clin. e Therap.*, 1887, No. 1, the case of a man aged forty, whose family history showed that he had come from healthy parents; a brother had died of phthisis. The patient had ten years previously suffered from pleuro-pneumonia on the right side, and since then had complained of frequent pain in the right mammary region, with fever and cough with bloody expectoration. A leech had been applied over the painful spot, and after several days a small tumor formed at the point of application, which, when incised, gave exit to pus. On the day following this incision, fever and the expectoration of a muco-purulent secretion began. The pheno-

mena increased in proportion as the discharge externally lessened; perspiration, emaciation, and diarrhœa were also present. Physical examination showed a cavity in the right mammary region extending from the third rib to the fifth intercostal space. The sputum contained abundant bacilli. CASINI considered from all the circumstances that fresh tuberculous infection was going on, and that it was imperative to open the cavity freely, and disinfect it.

Resection of the fifth rib was performed, and the cavity was thoroughly irrigated with solution of corrosive sublimate 1-1000, and sprinkled with iodoform. After the operation the expectoration lessened, became mucous in character after ten days, and in fifteen days the fever had entirely disappeared. Bacilli were not found in the sputum. The patient recovered, and was free from fever and cough.

Casini feels justified in drawing the following conclusions:

1. Surgical interference is justified when we have to do with a circumscribed tuberculous process, and a large cavity should be treated as a tuberculous cavity in bone.
2. Under certain conditions lung cavities have a tendency to localize tuberculosis, and when such foci are promptly destroyed general infection may be checked.
3. The depth of lung cavities is no counterindication against attacking them.

ERGOTIN AS AN ADJUVANT TO DIGITALIS.—ROSEN-BACH, in the *Berliner klinische Wochenschrift*, No. 34, 1887, reports good results from the combination of these remedies in (1) aortic insufficiency; (2) in idiopathic dilatation of the heart, with alterations in the elasticity and contractile power of the bloodvessels; (3) in arteriosclerosis.

He suggests the following formulæ:

R.—Inf. sec. cornu.	32½.
Æther. sulphur.	℥ 45.
Acid. hydrochlor.	℥ 15.
Aquæ	34½.—M.

Sig. Teaspoonful every two or three hours.

Also

Ergotin.	gr. 30 to 60.
Acet. digital.	℥ 75.
Aquæ	34½.—M.

Sig. Teaspoonful as indicated.

In p. orm.

Ergotin.	gr. 45.
Pulv. fol. digital.	gr. 30
Pulv. et. ext. gentian.	q. s.

Ad. pil. 50 in num.

Sig. Dose; two or three pills.

Also

Infus. fol. digital.	℥ 23.
Ergotin.	gr. 30.
Aquæ	34½.—M.

Sig. Teaspoonful every two hours if needed.

POINTS IN THE DIAGNOSIS OF CONSTITUTIONAL ENFEBLEMENT AS A GUIDE TO THE REJECTION OF RECRUITS.—DUPONCHEL, Major and Surgeon in the French army, has found (a) that depression of the apex

of the heart below its normal level does not necessarily imply organic disease. It is frequently the result of defective development, and the hypertrophy so often occurring in these patients at adolescence.

(b) Prolonged expiration over the apices, especially the right, is not a sign of tuberculosis when unaccompanied by other characteristic signs.

(c) Isolated, or taken together, these signs are of value when combined with measurements of the body as indicating defective constitution which may justify the rejection of recruits.—*Archives de Medecine et de Pharmacie Militaires*, September, 1887.

A CAPILLARY CATHETER FOR CASES OF STRICTURE AND RETENTION.—DR. COUSINS describes the following instrument, used in aspirating a distended bladder, in the *British Medical Journal* of September 17, 1887:

During the last two years I have made an extensive trial of the capillary catheter, and I have used it with great satisfaction in many troublesome cases of stricture retention. Many of my friends have also communicated to me their successes, so that I am now able, from an extended experience, to recommend a trial of the method at the very onset of the treatment. The operation is painless, and generally requires no anæsthetic. The little instrument is perfectly flexible, and can be used with far more ease and safety than the small gum elastic or fine silver catheters which are usually employed by surgeons.

The capillary catheter is a compound contrivance, consisting of a filiform bougie and a fine catheter, very carefully prepared with woven web and gum-elastic, and possessing great flexibility and toughness, together with a smooth and highly polished surface. The combination is about eighteen inches in length, and it can be used for pneumatic aspiration by slipping over it an India-rubber tube connected with a glass bottle, fitted with a two-way cork and a hand-ball air-exhauster.

The operation is readily performed in the following manner: After injecting the urethra with warm oil, and covering the patient with blankets, the penis is drawn forward with the left hand, and the catheter gently passed down to the stricture. As soon as its progress is arrested, it must be withdrawn two or three inches, rotated between the thumb and finger, and again twisted down upon the obstruction. During the repetition of these manipulations it often readily slips into the bladder; at the same time, its free and easy movement in the urethra, together with the sensations experienced by the patient, clearly indicate to the surgeon that the stricture has been overcome, and the catheter coaxed to move in the right direction. The discharge of a little urine now takes place, and the distended bladder is soon relieved, and the urethral spasm subsides. The urine now escapes in successive jets through the catheter, and this flow can be accelerated by fixing to its end the aspirating bottle and hand-ball exhauster.

THE "TIN DRESSING" FOR LEG ULCERS.—DR. WATSON, of Boston, describes a dressing devised by him as follows, in the *Boston Medical and Surgical Journal* of September 29, 1886: There is one principle in the treatment of chronic ulcers of the leg which he thought hastened the healing process materially. The analogy was seen in the freezing of a sheet of water. If the

water were smooth the skimming of its surface with ice went on more rapidly than if it were thrown into an uneven surface by the wind. In the same way if the surface of the ulcer were made flat and smooth, the epithelium would extend across it more rapidly than if, like the rough water, its surface were occupied by granulations, and the open surface were above or below the level of the surrounding skin, as in the exuberant or indolent ulcer respectively. It had, therefore, been his practice in such cases as required it to secure this condition by the application of a shield of sheet-tin on top of the ulcer to bring the surface even with the surrounding tissues. The dressing was known at the City Hospital as the "Tin dressing," and its method of application was as follows: The ulcer and surrounding surface were soaked in corrosive sublimate, 1 part to 4000, and thoroughly cleaned; a bit of protective was then placed upon the surface of the ulcer, covering a little more surface than the ulcer actually occupied, protective or some substance having a perfectly smooth surface was used in order that the new epithelium, which shot in from the edges over night, so to speak, should not be pulled off by adhering, as it did to cheesecloth or compress or anything having a meshwork-woven surface. The tin made to fit the surface on which it was to lie is then placed on the protective, and the whole as well as the surrounding tissues covered with a dry corrosive sublimate gauze dressing, which was held in place by an evenly applied bandage extending from toes to knee.

Ulcers which had been lagging for days beforehand would often take a rapid start under this dressing.

A HÆMOSTATIC MIXTURE.—PAVESI has prepared the following, which is especially useful in gynecological operations; it is efficient and unirritating:

Acid sulpho-carbolic	25 parts.
Alcohol rectificat.	25 "
Acid benzoic	5 "
Acid tannic	5 "
Glycerin	125 "
Aquæ rosæ	200 "

For local use.

Sulpho-carbolic acid is made by mixing one part of sulphuric acid and a half part of carbolic acid, and heating a few moments over a water bath. The benzoic acid is dissolved in glycerine and alcohol, and the tannic acid in alcohol.—*Gazette de Gynécologie*, August 1, 1887.

COCAINE POISONING.—SCHNYDER reports the case of a druggist who for the relief of headache took three-quarters of a grain of cocaine and repeated it in three-quarters of an hour. Anæsthesia of the extremities and labored respiration followed, for which he took twenty drops of tinct. nucis vomicæ. Half an hour afterward spasms; cold extremities; motionless, somewhat dilated pupils; a pulse of 150, with weakened heart action and delirium supervened. Strong coffee and warmth, with stimulant inhalations, somewhat restored him; respiration became more free and the pulse became 120. For severe pains in the head cold applications and mustard leaves over the chest were applied. In four hours after taking the drug the pulse had become 80, but the patient

could not sleep.—*Corr. Blatt f. Schweizer Aerzte*, No. 15, 1887.

THE TREATMENT OF THE CERVIX UTERI WITH NITRATE OF LEAD.—CHÉRON has employed this substance as follows:

Plumbi nitrat. 1 part.
Lycopodii 2 parts.

The parts are first cleansed by cotton and glycerine, and the powder insufflated upon the diseased surface.—*Revue de Therapeutique*, August 1, 1887.

A NEW METHOD OF INHALING NITRATE OF SILVER FOR DISEASES OF THE AIR PASSAGES.—The *Journal of Laryngology* for September, 1887, thus concludes its investigations of this mode of treatment, which has been extensively used in Sweden and Denmark.

On reviewing the advantages and disadvantages of the method of inhaling nitrate of silver, as introduced and practised by Scandinavian investigators, its great use in the treatment of chronic bronchitis and of emphysema seems so evident, and its drawbacks so slight, if but caution is observed, that it deserves a fair trial by other practitioners. As a treatment for diseases of the upper air passages, we hardly think it has any advantage over the methods previously known.

For those who should adopt the inhalations on the principles above described, we recommend the following plan as the most simple and practical. In the middle of a small room is placed, on a low table, a small Berlin crucible or evaporating pan, containing one part of nitrate of silver and three parts of ammoniac nitrate, and under the cup is placed a spirit lamp, which heats it very slowly. The patients, who are sitting around the table, need not protect their faces, but linen or white clothing should be covered. Each inhalation ought not to last longer than thirty to forty-five minutes, and the treatment should not be extended over too lengthy a period.

CHYLOUS CYST OF THE MESENTERY.—BRAMANN reports in the *Archiv f. klin. Chirurgie*, Bd. 35, an interesting case which occurred in Von Bergmann's clinic at Berlin, in which laparotomy was performed for a cyst, as large as a child's head, in the mesentery of the small intestine, which contained a clear chylous fluid. The cyst probably resulted from the occlusion and dilatation of the thoracic duct or some other lymph channel. The cyst was opened, emptied, and its edges stitched to the abdominal wall; its total excision was impossible on account of the danger of intestinal gangrene from the severed mesentery.

ACETPHENETIDIN, A NEW ANTIPYRETIC.—KOBLER concludes from his study of this drug that it is an efficient antipyretic, the use of which is not followed by inconvenient symptoms. It is given in doses of eight, nine, or ten grains; one such dose being more useful than smaller, repeated doses.—*Wiener medicinische Wochenschrift*, No. 26 u. 27, 1887.

ANTISEPTIC CIGARETTES.—DR. MACNAUGHTON JONES describes in the *British Medical Journal*, of September 3, 1887, the following antiseptic cigarettes, which he has used successfully in diseases of the pharynx and nares: 1. Containing eucalyptus and iodoform dis-

guised with vanillin. 2. Eucalyptus with iodo-salicylic acid. 3. Coltsfoot with eucalyptus and iodoform disguised with vanillin. 4. Tobacco, eucalyptus and iodoform disguised with coffee. Each cigarette contains one grain of the active ingredient. I may mention that the iodo-salicylic acid has not the unpleasant odor of iodoform and other iodine compounds, while it is quite as effective on the lower forms of life; under combustion, iodine is evolved. All the cigarettes will be found pleasant to smoke, and the odor of the iodoform well disguised, whilst its presence in the nasopharynx for some time after the cigarette is used may be detected by its taste. Those made with tobacco, eucalyptus, iodoform, and coffee are particularly agreeable, and the odor is thoroughly disguised. So, indeed, is it with those made with vanillin and coumarin, yielding an aromatic vapor which is pleasant rather than otherwise.

A USEFUL APPLICATION FOR PRURITUS OF THE VULVA.—VERRIER advises the following lotion, which may be used by saturated tampons in obstinate cases:

Acid. carbol. solut. 1 part.
Morphiæ acetat. $\frac{1}{2}$ "
Acid. hydrocyanic. dil. 6 parts.
Glycerin 20 "
Aqueæ 240 "

—*Gazette de Gynécologie*, August 1, 1887.

PNEUMOTOMY.—GUERMONPREZ, of Lille, reported recently to the Paris Academy of Medicine the case of a patient who had suffered for four years with persistent vomiting, for which three operations had been done: 1. The exploratory incision of the pleura. 2. Two months afterward the removal of portions of two of the ribs. 3. Multiple puncture of the lung, and a superficial pneumotomy; eight months later a deep pneumotomy was made, followed by intrapulmonary injections to liberate inaccessible and retained secretions.

From this, and allied cases, the conclusions are drawn that 1st. Exploratory incision of the pleura is not a dangerous operation. 2d. When the fetid odor of matter vomited causes a diagnosis of a suppurative centre, the incision of the parenchyma must be deep enough to reach this centre, even if it be carried through healthy tissues. 3d. If two foci which communicate with difficulty are found, they may be stimulated to healing by injections of warm, stimulating materials, which will facilitate their evacuation by the incision through the thoracic wall. 4th. When performed under proper conditions, pneumotomy is a justifiable operation, whose results should be good.—*Gazette Hebdomadaire*, September 2, 1887.

CONCLUSIONS REGARDING THE VALUE OF INOCULATION AGAINST ANTHRAX.—At the International Congress of Hygiene, recently held at Vienna, the statistics of 260,000 sheep and 29,000 cattle which had been inoculated in France in five years time, were reported, and a thorough discussion of Pasteur's method followed. The conclusion reached by Koch and others was that the utility of the method was not yet proven, and the personal report of Pasteur, whose ill-health had prevented his presence, was desired to appreciate properly the results of his treatment for anthrax.—*Deutsche medicinische Wochenschrift*, September 8, 1887.

CHEMICAL TESTS FOR BACILLI.—The diagnostic value of KOCH's cholera bacillus having been considerably impaired by the proved existence of other micro-organisms of like morphological characters, the discovery by Pohl, Brieger, and others, of a chemical reaction alleged to be peculiar to cultures of the comma bacillus was welcomed as an additional test of importance. This reaction consists in the development of a red color (*cholera-roth*) on the addition of hydrochloric acid to the cultures, and, as Brieger has shown, the color depends upon the presence of a ptomaine containing derivatives of indol. We now learn from the experiments of Ali-Cohen, of the Hygienic Institute of Groningen (*Fortschritte der Medicin*, No. 17), that the reaction is not peculiar to the comma bacillus, and that it may be obtained by the use of any mineral acid that contains the impurity of nitrous acid, for the pure acids do not produce it. The indol derivative is produced by Koch's bacillus somewhat more rapidly than it is by other morphologically identical forms; but then there are bacteria not morphologically allied to the comma bacillus which can produce this substance quite as readily. The discovery of the *cholera-roth* is thus shorn of its diagnostic value, and reliance must still be placed upon bacteriological methods for differentiating the cholera organism.—*Lancet*, September 17, 1887.

THE TREATMENT OF LUPUS.—KAPOSI, of Vienna, considers no remedy specific against lupus; excision of diseased tissues he regards as most often successful. His favorite applications are

Zinc. chlorid.			
Antimon. chlorid.	. . . . .	aa	3 2½.
Irid. Florent. pulv.	. . . . .	gr.	75.
Acid. hydrochloric. con.	. . . . .	℥	75.

This paste may be left in place twenty-four hours. KAPOSI also employs Hebra's arsenical paste:

Arsen. alb.	. . . . .	gr.	15.
Hydrarg. sulph. rubri.	. . . . .	gr.	45.
Ung. emoll.	. . . . .	3	6.

This paste is generally allowed to remain in contact with the tissues twenty-four hours.

Pyrogallie acid may be used, in combination with ung. emol., one to ten. This is left twenty-four hours in contact with diseased tissue. Also

Iodini pur.	. . . . .	gr.	75.
Tinct. iodin.	. . . . .	℥	74.
Glycerin.	. . . . .	3	2½.

may be applied. In surgical instruments KAPOSI prefers Vidal's spoon-curette.—*Allg. Wien. Med. Zeitung*, Nos. 24 and 26, 1887.

THE CAUSES OF MALIGNANT TUMORS.—RAPPIN concludes a series of studies upon this subject as follows:

1. There exist in carcinomata, sarcomata, and some of the benign tumors micrococci whose presence may be demonstrated by coloring fluids.

2. Cultures made of the tissues of these tumors produce a diplococcus which persists unchanged.

3. In its morphology this diplococcus resembles the bacteria of suppuration; inoculation of pure cultures of

this bacteria in animals produces effects similar to the tissues from which the germs were taken.

4. Particles of normal tissues, when taken with all possible precautions against contamination, when brought in contact with appropriate nutritive media, give birth to bacteria.

5. From a therapeutic stand-point interstitial antiseptic injections are indicated; and also the determination, if possible, of the cause of these growths, and its antidote.—*Gazette Médicale de Nantes*, September 9, 1887.

TUBERCLE BACILLI AND FLIES.—In a communication made to the Académie des Sciences by MM. SPILLMAN and HAUSHALTER, and recorded in *La Semaine Médicale*, the question of the spread of the tubercle bacillus by means of the common house-fly is considered. The authors state that they have seen flies enter the spittoons containing the sputum of phthisical patients: they were then caught and placed in a bell jar. On the following day several of these were dead. Examination of the abdominal contents and the excrement of these flies on the inside of the jar showed the presence of many tubercle bacilli. The authors point out the wide dissemination of the disease which may take place in this way, and recommend as a preventive the employment of covers with a small opening.—*Lancet*, September 10, 1887.

THE TREATMENT OF ERYSIPELAS COMPLICATING SURGICAL AFFECTIONS.—Among the numerous applications used in the local treatment of surgical erysipelas, ROTHE advises an antiseptic liquid as follows:

Acid. carbolic.	. . . . .	gr.	7½.
Alcohol (50 per cent.)	. . . . .	gtt.	15.
Essent. terebinth.	. . . . .	3	3¼.
Tinct. iodin.	. . . . .	gtt.	15.
Glycerin.	. . . . .	3	3¼.

FRAIPONT and VAN WINIWARTE immerse the affected part for ten or fifteen minutes in a bath of warm bichloride of mercury solution, 1 to 2000. The part is then wrapped in iodoform gauze, and enveloped with a bandage material moistened in Burow's fluid, which, as prepared by Billroth, is

Alum	. . . . .	1	part.
Plumbi acetat	. . . . .	5	parts.
Aquæ	. . . . .	100	"

An impervious protective is placed over all.

On the following morning the epidermis will be found macerated; superficial diseased tissues will come away, and the part may be cleansed with material dipped in sublimate solution 1 to 2000, and then dressed antiseptically.—*Revue Générale de Clinique et de Thérapeutique*, September 15, 1887.

SALIX NIGER AND STROPHANTHUS IN GENITO-URINARY DISEASE.—MR. FENWICK, of the London Hospital, has found, in testing a number of new drugs, that those mentioned above are useful as follows:

Salix Niger (Black Willow).—A sexual sedative of decided value; useful in ovarian hyperæsthesia, also in prostatorrhœa, spermatorrhœa, excessive seminal emissions, and enforced continence. In the latter disorders

its action is good, but inferior to potassium bromide. This is, however, somewhat counterbalanced by its non-depressant qualities. Dose, $\frac{1}{2}$ dr. to 1 dr. Finding it of value in those wearisome cases of urethral neuralgias, following gonorrhœa, I began to substitute soda salicylate for it. I was impressed by the relief this latter afforded. In cases of urethral pain in the adult, I first eliminate stone, stricture, urethral granulations, and over-acid urine, and then prescribe soda salicylate (5 gr. to 8 gr.) with a gratifying result.

Strophanthus (Kombè).—I believe there is a distinct future before caffeine, digitaline, and *strophanthus* as adjuvants to operations on the vesico-urethral tract. We have sometimes to deal with partial or complete temporary suppression, and sometimes with rigors after operative interference or even instrumentation. Caffeine seems indicated to avert the former; *strophanthus* the latter. Again, if we have reason to anticipate sudden flooding of the renal vessels and consequent urinary fever as the result of an operation, then digitaline, from its power of controlling the renal circulation, is indicated. Our treatment, however, on these lines must go *pari passu* with our oncometric knowledge of drugs which affect the kidney circulation or the abdominal blood pressure. I believe *strophanthus* has power, worthy of further investigation, in controlling rigors. I employed it on the theoretical grounds that it increases cardiac power and general blood pressure. Five in-patients suffering from violent rigors after instrumentation were treated with the tincture in doses of 5 m. after catheterization. In no instance were rigors induced.—*Lancet*, September 24, 1887.

A RARE CYST; EXTIRPATION; RECOVERY.—WEIL is quoted by the *Centralblatt für Chirurgie* of September 24, 1887, in his report of a congenital cystic hygroma of the right supraclavicular region, occurring in a child eleven months old, which was successfully extirpated. The cyst was multilocular, part containing blood, and part lymph; it lay close to the jugular and subclavian veins, but did not communicate with them.

Günther and von Koch have reported blood cysts communicating with the jugular vein, but the cyst in the present instance was unique.

RECENT FORMULÆ FOR SALOL.—NICOT, VUILLET, and other French observers, have found the following formulæ useful:

Sacchar. lactis	4 parts.
Salol	1 part.

The ordinary dose of salol is fifteen grains in this combination.

Salol may be made into tablets after the following formula:

Gummi tragacanth.	gr. 15.
Gummi arab.	gr. 45.
Aquæ	3 2½.
Salol	3 6¼.
Sacchar. alb.	3 15.
Essent. citron.	gtt. 5.

The dose of salol mentioned (fifteen grains) will be obtained by dividing this mixture into twenty-five lozenges or tablets.

Equal parts of salol and powdered starch have been used with advantage, applied to ulcerations of the cervix uteri and vagina.

Salol may be combined with collodion, as follows:

Salol,	
Ether	aa 4 parts.

Dissolve, and add

Flexible collodion	30 parts.
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An oleate of salol has been found useful for troubles of the external portions of the eye. A pomade, salol 5j to 3vjiss of vaseline, may be employed.

For burns:

Ol. oliv.	6 parts.
Salol	1 part.
Aquæ calcis	6 parts.

In suppositories:

Salol	3 2½.
Ceræ alb.	gr. 53.
Ol. theobromt.	3 10.

For ten suppositories.—*Revue Générale de Clinique et de Thérapeutique*, September 22, 1887.

OATMEAL AND LARD FOR BURNS.—DR. GREENE reports in the *British Medical Journal* of September 24, 1887, his use of these simple but efficient remedies, as follows:

I have for some time been in the habit of using for all degrees of these injuries equal parts of fresh lard (that is, free from salt) and oatmeal flour made into a paste, which, when spread on a cloth (old calico), or, preferably, a piece of lint, I direct to be applied or rolled round the affected part or limb, and allowed to remain on for twenty-four hours, after which a fresh application is made, and so on every twenty-four or forty-eight hours, as the exigencies of the case demand. In every instance I was well pleased with the progress of cases subjected to this treatment, several of which had been ineffectually treated by other methods. The advantages which I claim for this application are: (1) its freedom from odor, (2) its soothing properties and antiseptic action, (3) its superior healing powers, and, lastly, its cheapness and the ease with which it can be procured (in most houses) on the shortest notice. This latter advantage is of no small importance, taking into consideration the sudden and frequent occurrence of injuries of this nature in everyday domestic life.

ATROPIA AND STRYCHNIA FOR SEA SICKNESS.—The following prescription is taken from the *Revue Scientifique* of September 24, 1887, as having been originally published by a naval surgeon in *La Semaine Médicale*:

R.—Atropiæ sulph.,	
Strychniæ sulph.	aa gr. ⅓.
Aquæ menth. piper.	3 10.

Sig. Dose, 15 minims, hypodermatically; may be repeated in two hours.

For a child two years old, one-sixth of this dose may be given. Caffeine, in 5 grain doses, or combined with atropia and cocaine, may also be used to advantage.

THE MEDICAL NEWS.

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OF MEDICAL SCIENCE.

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SATURDAY, OCTOBER 15, 1887.

THE HEALTH OF THE CROWN PRINCE.

In view of the alarming reports as to the recurrence of the growth in the Crown Prince's larynx, and of its undoubted cancerous nature, which during the week have appeared in the daily press, the following cable just received from Sir Morell Mackenzie by **THE MEDICAL NEWS** is of interest:

"The Crown Prince is free from recurrence of the laryngeal growth. A chronic inflammation remains, with a disposition to subacute catarrh on slight exposure, or after much talking."

In the light of this authoritative statement there exists no reason to alter the view already expressed as to the non-cancerous nature of the growth. The Prince, however, seems to have suffered from an attack of acute inflammation of the windpipe, and in case of recurrence, to which he appears liable, this might lead to changes in the deeper tissues. Should stricture ensue the complication would be serious, despite malignancy.

THE CHOLERA AT NEW YORK QUARANTINE.

THE cholera brought from the city of Naples to the port of New York by the steamer "Alesia" on the 23d of September and, on that date, transferred, with the steerage immigrants and their effects, to Hoffman and Swinburne Islands, still prevails there with apparently unabated virulence. As yet, no cases have occurred on the mainland, but the danger with which the arrival of the "Alesia" confronted our chief metropolis and maritime port is as threatening to-day as on the 23d of September.

The unexpected continuance of cholera among the quarantined immigrants, so long after the enforcement of measures which had been devised for

its prompt suppression, and the increasing public anxiety lest the disease in some way pass the barriers which have been erected against it and invade the mainland, would seem to call for an inquiry as to whether all has been done by the authorities that present knowledge and experience require to be done in order, beyond peradventure, to secure a speedy arrest of the disease among the immigrants and protect the country from the disasters of an epidemic. The standard by which we must gauge the measures which have been enforced in the present emergency, should be sufficiently extensive to cover at least all the known avenues of attack.

Measures of prevention, to give the greatest possible guarantee of success in extinguishing an incipient epidemic of cholera, should, in the first place, be based upon the most exact knowledge we possess of the cause, mode of attack, and manner of spread of the disease; and, in the second place, these measures should be intelligently, thoroughly, and rigidly enforced.

What are the considerations involved in the first category? Probably nine-tenths of intelligent and experienced physicians all over the world, even including those of India, have for years admitted that there is most convincing proof that the active cause of the disease is a specific, material, living entity, of extremely minute size, endowed with the power of self-propagation, and of exceedingly rapid multiplication in enormous numbers; that among animals it naturally attacks man alone, assailing him only by way of the intestinal canal; that the evacuations from the bowels contain the active cause of the disease, and that when this agent in any manner—as through drinking water, milk, food, or the handling or washing of contaminated personal effects, etc.—reaches the intestines of another susceptible person, the disease may be thereby transmitted from the sick to the healthy; that the active agent exists in the dejecta of the lightest and almost imperceptible no less than in the severest and most deadly forms of the disease, and is known to be transportable from place to place through the movements of man and his personal effects.

Proceeding from this basis, logical deduction and common experience alike demonstrate the absolute necessity and efficiency of such measures of prevention as the following:

a. Speedy recognition and isolation of the sick; their proper treatment; absolute and rapid destruction of the infectious agent of the disease not only in the dejecta and vomit, but also in clothing, bedding, and in or upon whatever else it finds a resting place.

b. The convalescents should remain isolated from the healthy so long as their stools possibly contain any of the infecting agent; before mingling again

with the well they should be immersed in a disinfecting bath, and afterward be clothed from the skin outward with perfectly clean vestments, which cannot possibly contain any of the infectious material.

c. The dead should be well wrapped in cloth thoroughly saturated in a solution of corrosive sublimate, 1 to 500, and without delay, cortège, or lengthy ceremonials, buried near the place of death in a deep grave remote as possible from water which may, under any circumstances, be used for drinking, washing, culinary, or other domestic purposes. (Cremation, of course, is by far the safest method of disposing of cholera cadavers.)

d. Those handling the sick or the dead should be careful to disinfect their hands and soiled clothing at once, and especially before touching articles of food, drinking, or culinary vessels.

e. In the case of maritime quarantine, the well should be disembarked and placed under observation in quarters spacious enough to avoid crowding, and so well appointed and furnished that none will suffer real hardships.

f. Once having reached the station, those under observation should be separated in groups of not more than twelve to twenty-four, and the various groups should under no pretext intermingle; the quarters for each group should afford stationary lavatories and water-closets in perfect working condition, adequate to the needs of the individuals constituting the group, and supplied with proper means of disinfection; there should be a bed raised above the floor, proper coverings, and a chair for each member of the group, each person being required to use only his own bed; there should be a common table of sufficient size to seat around it all of the members of the group, who should be served their meals from a central kitchen, and with table-furniture belonging to the station and cleaned by the common kitchen scullions.

g. Drinking water, free from possible contamination and of the best quality, should be distributed in the quarters of each group, as it is needed, and *in such a manner that it is received in drinking cups only*; there should be no water buckets or other large vessels in which handkerchiefs, small vestments, children's diapers, etc., can be washed by the members of any group.

h. Immediately after being separated into groups in their respective quarters, every person under observation should be obliged to strip and get into a bath (a disinfecting one is preferable); and afterward be clothed with fresh, clean vestments from the skin outward; every article of clothing previously worn should be taken away and properly disinfected.

i. Then all of the personal effects should be at once removed to a separate building, washed, if possible, and thoroughly disinfected, or, if necessary,

destroyed; after disinfection they should be temporarily returned to the members of groups, when occasion requires a further change of clothing.

k. Under no circumstances whatever should washing of clothing by those under observation be permitted; all used clothing should be first thoroughly disinfected (by boiling when possible) and then should be cleansed, the disinfection and washing being done by a sufficiently trained and absolutely reliable corps of employés supplied with adequate appliances.

l. All of those under observation should be mustered in their own quarters and be subjected to a close medical inspection, while on their feet, at least twice every day, in order to discover and isolate as soon as possible new cases which may develop, and, of course, the clothing and bedding of these new cases should be treated without delay in the manner already mentioned; in the meantime a watch should be set over the water-closet, for the purpose of discovering cases of diarrhoea, and when discovered, such cases should be temporarily separated from the rest, they should receive judicious medical attention at once, and precautions should be taken as if they were undoubted, but mild cases of cholera.

m. The quarters should be kept thoroughly clean, and every surface upon which infectious material could possibly be deposited, including the floors, should be washed with a strong disinfectant twice daily and oftener when necessary; evacuations from the bowels should be passed into a strong disinfectant, the hopper of the closet should be then flushed and finally drenched with a quantity of the same disinfectant.

n. For the proper attention to the sick there should be two or more competent and experienced physicians, assisted by a sufficient corps of intelligent and efficient nurses, with hours of duty so arranged that a physician with a sufficient number of nurses be in constant attendance in the wards of the hospital.

o. For the prompt recognition and separation of new cases, their temporary medical attention, the proper treatment of discovered cases of diarrhoea or cholera, and of other maladies, and the immediate correction of every insanitary practice or condition by constant, vigilant, and intelligent supervision, there should be at least two or more competent and experienced physicians with hours of service so arranged that a physician is on duty night and day among those under observation; and he should have subject to his orders, at any and every moment, a sufficient and efficient corps of nurses and laborers to carry out properly and promptly his directions.

p. In order to prevent the intermingling of the various groups, to enforce obedience, and order,

and to make it absolutely impossible for the quarantined and their personal effects to have any communication with the exterior, a well organized and sufficiently large police corps should patrol the borders of the stations and the buildings, day and night.

g. Any group among whom there has developed no new case of cholera or of choleraic diarrhoea during the preceding eight or ten days may be regarded as harmless and be allowed to leave quarantine after each one is finally immersed in a disinfecting bath, and reclothed with clean garments from the skin outward; the garments removed being destroyed or thoroughly disinfected and cleaned as above indicated.

As yet no reference has been made to the crew, ship, and cargo. What has been said of the treatment of those under observation applies to every one of the ship's inhabitants. The observation, isolation, and cleansing of the crew and their effects could safely be performed aboard ship, if necessary. The ship should be thoroughly cleansed and disinfected, particular attention being given to the quarters of the immigrants and crew.

By the adoption and quick enforcement of all the above-indicated measures of prevention, New York and the country at large, without doubt, would, at the present time, be safe from the spread of cholera beyond quarantine, and, moreover, the disease would probably not even spread among the immigrants under observation.

But, how closely do the preventive measures enforced at the New York quarantine during this critical period come up to the standard we have cited? We regret that our duty to the public requires us to declare that they fall far short of it, and that, from what we can learn, they should be characterized as in many respects dangerously lax.

We have reason to believe that there is no constant medical attention and supervision at either Swinburne or Hoffman Island, and that the force provided for guarding the approaches to these stations is quite insufficient to guarantee absolute isolation from the mainland. We are informed that the washing of clothing is promiscuous, takes place around the open mouths of sunken cisterns, and that the water in the latter is accessible to the immigrants, if, in disobedience of orders, they chose to drink it.

We do not pretend to say where the responsibility for this state of affairs rests, but in view of the almost uncontrollable tendency of cholera to spread at times, it seems that there is much to be improved in the management and laws of quarantine, even in the Port of New York, which has heretofore, in this country, been regarded as a model. It is to be hoped that the report of the Committee appointed by the College

of Physicians of Philadelphia, to investigate our quarantine safeguards, will have some effect not only in causing a prompt lessening of the danger which at present threatens the country through the Port of New York, but will ultimately contribute greatly to a general reform in our management of quarantine.

AMYL HYDRATE.

WE have already called attention to the use of this comparatively new drug for the production of sleep and to quiet nervousness; the first reference made to it in these columns being taken from the *Therapeutische Monatshefte* for July, 1887. In the same journal for September, 1887, is a second paper by DR. SCHARSCHMIDT, even more full in its accounts than the first, which records experiments not only as to its hypnotic powers, but also as to the time required for its absorption, its effect on the pulse and the general system. The drug can be given in the form of a clyster, or by the stomach in cognac or red wine and sugar.

The same writer also gives the results of its use in one thousand and fifty-one cases, for the production of sleep.

In eight hundred and sixty-nine cases the results are classed as good, in one hundred and thirty-eight they were medium, and in the remainder no effect was noted. The doses given ranged from 23 grains to 75 grains, the larger proportion receiving from 45 to 60 grains.

THE medical school of McGill University opened its classes on Monday, October 3d, with an introductory lecture by Sir James Grant, M.D., K.C.M.G. The eloquent lecturer dwelt on the importance of a good preliminary education before entering upon the study of medicine, and drew attention to the clinical advantages afforded to students in the McGill medical school. He also spoke of the importance of a knowledge of sanitary science, and the relation of disease to locality, and food supply. After giving some sound advice to the students, and especially to those now for the first time attending the medical classes, he thanked the faculty for affording him this opportunity of addressing the students.

In the evening Sir James Grant was given a complimentary dinner at the St. James's Club by the McGill medical faculty in recognition of the honor of knighthood recently conferred upon him by Her Majesty. Sir James is the first medical man in Canada who has been knighted.

Sir Robert Ball, Astronomer Royal of Ireland, recently gave a very eloquent and instructive lecture to the students of the University, the subject being the "Earth and the Moon." He explained how the moon caused the tides and how the days were continually growing longer, owing to the diminished

speed with which the earth revolves. This diminution, however, only amounts to a fraction of a second in a thousand years, so it need not trouble the present generation greatly.

THE U. S. Marine-Hospital Service reports yellow fever as prevailing at Tampa, Florida, and twenty cases and four deaths were noted up to October 7th. On October 10th six new cases and one death were reported.

THE epidemic of scarlet fever in London continues to spread, and there are now 1900 cases in the hospitals.

THE death of Dr. James A. Gray, managing editor of the *Atlanta Medical and Surgical Journal*, is announced.

SPECIAL ARTICLE.

THE YELLOW FEVER EPIDEMIC AT TAMPA.

So far as can be judged from the testimony presented, the disease now prevailing at Tampa seems to be yellow fever, and the panic that prevails in that portion of Florida is not altogether without justification. The positive statements of Dr. Wall, the Health Officer, whose long residence at Tampa, and whose experience in cases of yellow fever fairly entitle him to judge, should weigh much more than the dicta of interested laymen, each more anxious to prevent the stampede, and consequent commercial losses, than to tell the truth. The fatal progress of the disease tells its own story, and prevents adhesion to the theory that the disease is dengue and not yellow fever.

For the arrest of the progress of the disease, and the prevention of its spread, the experience of the last decade has conclusively established the utility of the measures of *isolation* and *segregation*, in conjunction with those public measures always needful in times of epidemic, namely, *municipal cleanliness*, *careful quarantine*, and *special hospitals*.

We have repeatedly seen examples in the United States of the calamitous results of the neglect to isolate the first cases, and, indeed, to the neglect of this precaution alone, we may attribute some of our most disastrous epidemics. Isolation means something more than the separation of the individual, while ill from the fever. It also includes the surveillance of all fomites, the attendants upon the sick, and really includes the disinfection of the premises, for no patient while suffering from a contagious disease can be said to be properly isolated unless the atmosphere about him be rendered practically aseptic, and contact with transportable fomites absolutely prevented. The immediate removal of the yellow fever patients from Jasper Rand's wharf at the foot of Palafox Street, in Pensacola, on the night of

the 22d of August, 1883, probably prevented an epidemic in that city in that year; for, although the disease was then prevalent at the Navy Yard, from which the city was separated by a rigid *cordon sanitaire*, and the local conditions were undoubtedly favorable to the development and spread of the disease, no further cases were reported.

The occurrence of several cases at Tampa, in portions of the city remote from each other, at this time, prevents the carrying out of this measure.

The fears of the populace and, as well, the experience of the past, act as powerful incentives to segregate the well from the sick; and thus the material for the propagation and development of any epidemic is sensibly reduced, and yellow fever is one epidemic disease easily managed in this way, when the people cheerfully obey the sanitary authorities.

In order that the well may scatter themselves far from the original centre of infection, with safety to those living at the place of refuge, those now usual measures of land quarantine are absolutely essential. At the line of the *cordon sanitaire*, the refuge camp is established, and care taken that no fomites are carried beyond.

It is because of a lack of confidence in the efficiency of the guards, that the *cordon sanitaire* has so unjustly been derided; but there are guards the world over that do not guard, nevertheless, policemen cannot be dispensed with because of the possible unfaithfulness of a few. But it is certain that American quarantine guards are among the most faithful of mankind. The courage and devotion of the guards under Murray and Spohn, during the Brownsville (Texas) epidemic of 1882, and the faithful watchfulness of the Pensacola guardsmen under Captain Guttman, are plain proofs that an extended guard line can be maintained for long periods, successfully. Every effort, however, should be made to diminish the number of people subject to its operation, by hastening the formation of camps of refuge, as soon as isolation of the cases is no longer practicable.

Conjointly with these measures, municipal hygienic rules should be rigidly enforced, and care taken that when the refugees return, they shall return to a clean and regenerated city. If it were possible to destroy by fire every textile fabric in the sick room, it would be justifiable on sanitary grounds, although the milder measure of soaking them in disinfecting solutions, seems to have successfully prevented the spread of cholera in Paris at the time of its recent invasion.

In regard to special fever hospitals, there can be no question that they serve a useful and humane purpose; the patients can be more easily and cheaply provided for, the difficulty of obtaining nurses is obviated, the skill of an experienced resident physician may be secured, and modern hygiene may easily prevent such a hospital from becoming in itself a centre of infection.

JOHN B. HAMILTON.

WASHINGTON, October 12, 1887.

REVIEWS.

STUDENTS' GUIDE TO DISEASES OF THE EYE. By EDWARD NETTLESHIP, F.R.C.S., Ophthalmic Surgeon to St. Thomas's Hospital, etc. With a chapter on EXAMINATION FOR COLOR PERCEPTION. By WILLIAM THOMSON, M.D., Professor of Ophthalmology in Jefferson Medical College. Royal 12mo. pp. 475, with 165 illustrations. Philadelphia: Lea Brothers & Co., 1887.

It is with books, as with men, that some age faster than others. The early symptoms of senility include, a cessation of increase in bulk; defective assimilation of new materials, causing them to appear as foot-notes, and interjected paragraphs; imperfect elimination of outgrown theories, and over-worked woodcuts; and a general rigidity of the plates, preventing the normal infusion of new ideas into the body of text. In the work before us such symptoms are conspicuously absent, and if Mr. Nettleship's book be not immortal, it at least presents that semblance of immortality which healthy, vigorous life always exhibits.

For the seven years since it first appeared, it has to show more than one hundred pages of new matter; which reflect, not only the progress of ophthalmic science and art, but, as well, the growth and maturing of the author's mind. For not only has new matter been added, but the original text has been truly revised, paragraphs of minor importance stricken out, imperfect articles rewritten, and whole chapters rearranged, so that the book, instead of becoming overloaded with undigested accretions, has improved in arrangement and unity as much as it has increased in bulk. Even of the eighty-nine cuts that appeared in the first edition, twenty per cent. have been replaced by new ones better illustrating the subject. Among the cuts that are entirely new we notice as of especial practical interest one giving seven illustrations of various deformities of the teeth from inherited syphilis and other causes.

Part third, dealing with "diseases of the eye in relation to general diseases" has shared fully in the recent additions, and should be of interest to every general practitioner, as giving the eye-symptoms and eye-complications of those general affections he has constantly to deal with. And the appendix, giving now some eleven pages of formulæ with remarks as to their use, cannot fail to strike the "practical" physician very favorably.

We notice among these formulæ, four grains to the fluid-ounce set down as the proper strength for the solution of homatropine; and the same proportion given for the solution of eserine. In the case of the former, its mydriatic power will be imperfectly developed, a twelve-grain solution, or even stronger, being on all accounts preferable; while the latter, if "used in mydriasis and paralysis of accommodation, whether caused by atropine or by nerve lesions," will be liable to cause in many cases intense neuralgic pain from cramp of the ciliary muscle. In view of this, the subsequent remark, "a weaker solution (gr. j to 3j) is often better borne," might well have been italicized.

Among the useful additions made in the present edition, we notice a table giving the shortening of the eyeball in various degrees of hyperopia and its lengthening

in myopia. In the effort to give only round numbers, however, it has been made needlessly inaccurate. Thus, H. of 2 Dioptres is said to represent a shortening of 0.5 mm., and H. of 3 Dioptres of 1 mm. But in spite of these slight imperfections, to one who knew what an excellent manual Nettleship's Guide already was, it must be a surprise to see how much he has been able to improve it. Never before has it so well deserved the high reputation it has won.

SOCIETY PROCEEDINGS.

PHILADELPHIA ACADEMY OF SURGERY.

Stated Meeting, October 3, 1887.

THE VICE-PRESIDENT, S.W. GROSS, M.D., IN THE CHAIR.

DR. THOMAS G. MORTON made some remarks on two cases of

EXCISION OF THE KNEE-JOINT

which presented some novelties. In the case of a boy, eight years of age, with strumous synovitis of the knee, he made an incision in the median line, intending to split the patella and draw it to either side, and then excise the joint and stitch it together. On cutting through the patella, however, he found that it was the seat of necrosis. He continued the incision in the median line and dissected out the patella. This was the first time that he had operated in this way, and he found that it was an exceedingly nice form of operation.

The second operation was for destructive synovitis of the knee occurring in a man, twenty-two years of age, who had worked until two days before his admission to the hospital, when he had a temperature of 101°, which continued for the next five days. In this case there was a sinus about two inches above the patella and to its inner side. This was opened sufficiently to admit the finger, and the joint was found involved, the suppuration being moderate in amount. The incision was then continued downward, and he was able to displace the patella with its ligament, and the tendon of the quadriceps muscle to the outer side. There was not the slightest trouble in making the excision of the joint. The patella was slightly eroded. He shaved off this portion, and also a corresponding portion of the femur and brought the two bones in contact. At the time of operation the temperature was 101.5°, has steadily decreased and has remained at normal since. The operation was done September 23d, and the dressing has not yet been removed.

In another case if he did not split the patella he would, as in the last case, draw the patella to one side.

For fixation he drills the tibia in three places, and the femur in a corresponding manner, and then ties them together with what is known as "twenty-eight day catgut." In only one instance has he known any portion of the catgut to come away. There has been no suppuration in any case where ordinary antiseptics has been employed.

There is one practical point that might be referred to, and that is, that, in drilling these bones, an ordinary bradawl answers every purpose. He never allows the instrument to perforate the articular surfaces, but makes

the opening just above them. With regard to the further fixation of the joint, he uses a slightly angular posterior splint placed along the outer side of the limb, binding them together with a roller bandage. He has had the best results, and it is rare that he has to dress any case before the second week.

DR. CHARLES B. NANCREDE related a case of

LUMBAR COLOTOMY

which presents certain points of interest with reference to prognosis, diagnosis, and treatment, and with reference to certain operative measures. The history of the case is briefly as follows: The man stated that while in the army he had dysentery, and that since that time he thought that the passage was small. There was probably then a stricture of large calibre. Seven or eight years ago he discovered an anal fistula, which was operated on successfully. Over two years ago another fistula formed, for which he was operated on, and, so far as can be ascertained, the stricture was detected at this time and also operated upon, for, after his recovery from the operation, he began to pass flatus and feces through the urethra. The stricture had evidently been cut so deeply that either from the depth of the incision or the subsequent ulceration, an opening had formed into the bladder. One year ago he was operated on for the extension and deep infiltration of the tissues of the fundament. He was at first benefited by the operation, but again relapsed, passing considerable quantities of feces through the urethra, and on several occasions had attacks of partial obstruction of the bowels resulting in fecal vomiting. His suffering gradually became very severe. When he came under observation the question which presented itself was, Is this a carcinoma or an ordinary fibrous or cicatricial stricture resulting from the old attack of dysentery? He recommended that left lumbar colotomy be performed, with the hope that the passage of the feces into the bladder would be obviated, and that if the stricture were not carcinomatous there might be some amelioration of the local condition. He performed the operation, and at the end of seventeen days the patient ceased to pass water by the rectum, and the indurated fundament had softened down wonderfully, and the so-called cancerous ulceration is beginning to heal at the edges. He did not believe this a case of cancer.

A word with reference to the operative measure. Usually when we get down to the colon it can be readily brought to the surface and recognized. In this case it was absolutely impossible to be sure what was present. The transversalis fascia was as dense as he had often seen the fascia lata of the thigh. The kidney fat was very deep, and the bowel was fully the distance of a forefinger below the surface of the skin. He then resorted to what he had seen recommended, but had never found it necessary to use—that is, inflation of the bowel. At once the colon came up into the wound, and there was not the slightest difficulty in recognizing and opening it. He did not see why this procedure might not be used with advantage in many cases of colotomy. In this case, although the colon was not distended, the man passed during the next ten days fully half a bucketful of feces.

DR. MORTON recalled an interesting case of lumbar colotomy in which, after making his incision, he reached

a tissue which he could not diagnosticate. He punctured it and found a large cyst of the kidney. This was certainly as large as a goose's egg. After the cyst was evacuated the bowel rose up, and there was no difficulty. Not long ago a lady came to me with stricture of the rectum. Digital examination showed a dense stricture involving the whole circumference of the bowel, about one and a half inches within the anus. The ordinary uterine sound passed through it with difficulty. There had been no passage for a long time except of the most liquid character. It was a question between lumbar colotomy and excision of the entire stricture. He had little doubt that it was a syphilitic stricture, although he had no positive proof that it was of this nature. He determined to attempt removal of the stricture, with the patient's permission, to perform lumbar colotomy if he could not get above the stricture. He found that the entire stricture could be removed, and he did so, bringing the healthy bowel down and stitching it to the external surface. He had received a letter from this patient stating that she is absolutely well, and that she is able to have large passages without the slightest pain.

DR. JOHN B. ROBERTS said that there is one question about stricture of the rectum on which he should like to have an authoritative opinion. This was forcibly brought to mind by the death of a patient on whom he had operated for stricture of the rectum, and he has known of several similar cases with the same result. The case to which he referred was one of long-standing rectal disease, with symptoms of stricture for eighteen years. The patient had at first been told that it was carcinoma, but, as she did not die, the diagnosis was evidently incorrect, and he was asked to see the case in consultation. The woman was exceedingly nervous. On examination, he found a dense annular stricture one and a half inches within the anus. Under ether, he made an incision, and dilated the stricture with his finger. He then introduced a large bougie, and, although he could introduce it with ease, he found that, unless he carried the base far back toward the sacrum, it always caught. On further examination, he found another obstruction high up. It felt like a hard tumor, and did not seem to be a cicatricial band like that already divided. He made a nick in this, and the bougie could then be passed without trouble. The next day he found that there had been a great deal of pain, and that the patient had insisted on sitting up in bed. There had been some bleeding, which had been checked by packing the rectum with ice. When he saw her the bleeding had stopped. That evening she insisted on getting out of bed and sitting on the commode, and had a large hemorrhage, followed by a second, from which she promptly died.

At the autopsy there was a large quantity of blood in the pelvis. There was no sign of any tumor, or of any obstruction. It may be that the second obstruction which he felt was due to a bend in the bowel, resulting from the old adhesions, and that above this the bowel was dilated and its walls thin. He should like to know the experience of other members of the Academy with this condition. In another case, in which an old lady complained of obstruction of the rectum, he passed a bougie and found nothing wrong. There were some hemorrhoids, on which he operated. This patient died

of peritonitis in a few days. He recalled a case in the practice of another surgeon, where an ordinary stricture was dilated, and the patient died of peritonitis.

DR. CHARLES B. NANCREDE asked if it is ever a good plan to use a bougie immediately after nicking a stricture? The death in stricture, where the fatal result is not due to exhaustion, results from the feces and discharges lying in contact with the upper portion of the bowel until they induce ulceration, perforation, and peritonitis, or they induce peritonitis as a result of the extension of inflammation from within outward. He thought that after nicking a stricture it is dangerous to trust to anything but the finger. This at once recognizes when a dangerous locality is approached. With a bougie one may get into an ulcerated, irregular portion of the bowel, where an amount of pressure not recognizable by the hand will produce perforation.

There is another point to which he would like to call attention, and that is, in stricture of the rectum, if we do not cut all the way back, there will be left a surface where there can be no drainage, and there is a strong probability that septicæmia will result. In operating on a stricture, it is better to cut back to the sacrum and coccyx, and then the diseased structure can be attacked without danger.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, October 6, 1887.

THE PRESIDENT, A. JACOBI, M.D., IN THE CHAIR.

DR. P. ALBERT MORROW read a paper on

THE MODERN METHOD OF TREATING SYPHILIS.

He said that the treatment of syphilis in this century differed from that of the fifteenth century in the modification of the method, and in detail rather than in essential nature. If stability be recognized as a true test of the value of a mode of treatment, the treatment of syphilis by mercury, having the stamp of professional approval after four centuries, might be regarded as of special value. But its mode of administration had been greatly changed; we had learned its limitations. We now regarded any treatment which seriously disturbed physiological functions as pernicious. Instead of overwhelming the syphilitic diathesis with metallic masses, the treatment had been extended, so to speak, to correspond with the natural life of the malady.

Dr. Morrow then took up the question of the use of mercury hypodermatically. This was not merely a different method of administering the drug, but, if the claims of its enthusiastic advocates were well founded, it overturned the general belief in the necessity for the long continued use of the drug, and the large quantity required.

Dr. Morrow's personal experience with the hypodermatic use of mercury was limited, but during the summer he had observed its employment in a large number of cases in the Paris hospitals. Some made use of the soluble, others of the insoluble salts. He gave the experience of Lewin, Jullien, of Lyons, Martineau, Balzer, DuCastel, Besnier, and others. The treatment by the soluble salts involved the introduction of a quantity of bichloride of mercury or its equivalent in

other forms of one-eighth to one-sixth of a grain a day for thirty days; requiring, according to Lewin, about twenty-five centigrammes (nearly four grains) to effect a cure. By the insoluble salts the treatment required the introduction of ten centigrammes (one and a half grains) of calomel or the yellow oxide of mercury, and a repetition of this on an average four times, at intervals of from eight to fifteen days. The accidents from the hypodermatic method had become reduced very greatly. Jullien had not had an accident in several thousand cases. Dr. Morrow's paper concluded as follows:

In endeavoring to appreciate the therapeutic worth of the modern method of treating syphilis, we are confronted by a mass of confusing clinical statistics, as well as a crowd of contradictory statements on the part of the experimenters, some bearing testimony to its superior efficacy, others depreciating its value, and condemning it as obnoxious and impracticable. A careful weighing of this clinical testimony, balanced by my own observation and experience, justifies the following conclusions: The hypodermatic use of mercury, in simplicity, convenience, scientific accuracy, rapidity of action, and the development of a maximum effect from a minimum quantity of the drug, constitutes a decided improvement of the ordinary modes of its introduction into the system. The hypodermatic method is not so liable to cause salivation, gastro-intestinal disorders, and other toxic symptoms of hydrargyris. There is a remarkable unanimity of opinion among observers as to its efficacy in suppressing the active manifestations of the secondary stage, and hastening their involution. The claims that the subcutaneous introduction of mercury increases its potentiality, and widens the range of its specific action, enabling it not only to subdue refractory secondary lesions which resist ordinary treatment, but also the tertiary lesions of syphilis, may be considered as yet *sub judice*. The claim that it endows mercury with a greater permanency of effect, preventing relapses, and preserving the patient from manifestations of the diathesis for a long time, is not proven. The more pretentious claim that the hypodermatic introduction of twenty-five centigrammes (four grains) of the bichloride, or forty centigrammes (six grains) of calomel, cures syphilis, must be rejected as extravagant and absurd. The irritant action of mercury introduced hypodermatically, manifest in the production of pain and local accidents, renders its general employment in the systematic treatment of syphilis impracticable. The proper position of the hypodermatic method in the therapeutics of syphilis is in the category of adjuvants. Its employment is indicated when the necessities of the case demand a rapid and intense mercurialization. In certain emergencies—when the integrity of an important organ is threatened, for example—its prompt and energetic action renders it superior to other modes of mercurialization. In exceptional cases—marital syphilis, for example—when the exigencies of the situation demand secrecy in treatment with the speediest possible suppression of the symptoms, this method is to be recommended. It constitutes a most excellent reserve treatment in cases where the gastro-intestinal irritability is so marked as to forbid the introduction of mercury by the stomach. In cases of tertiary syphilis, where iodine idiosyncrasy

is so marked that the iodide of potassium cannot be employed, hypodermatic injections of mercury should be substituted. While my own impression is that the hypodermatic method will never supersede the classic modes of employing mercury, I regard it as a decided acquisition to our therapeutic resources against syphilis—too valuable to be ignored, or practically disregarded, as has been the case in this country.

Drs. Bronson, R. W. Taylor, F. R. Sturgis, L. D. Bulkley, and the President, discussed the paper. Most of them had begun the use of the injections about 1869-70, at a time when the irritant effects of the injections were such as to cause them to cease the practice. Dr. Taylor had continued the method, using the different salts in special cases since, and he said that the treatment was applicable only under special conditions, corresponding in general to those contained in Dr. Morrow's concluding remarks. The President had certainly used bichloride with advantage in hereditary syphilis with severe and early symptoms. Dr. Bulkley thought the method was called for. Dr. Morrow closed the discussion, and said the object of his paper was to give the present status of this way of introducing mercury into the system.

NEWS ITEMS.

THE CHOLERA AT NEW YORK.—Health Officer William H. Smith, M. D., of the Port of New York, furnishes the following statement, under date of the 5th instant:

The steamship "Alesia," from Marseilles, August 29, and Naples, September 3, with most of her cargo taken at Marseilles—at Naples she received her cargo by lighters—arrived at this quarantine and was inspected the morning of September 23.

The report of the surgeon showed that there had been eight deaths on board, six of which were unquestionably cholera. All the cases reported were fatal. Four cases were found in hospital sick with the disease, and four cases were discovered while inspecting the passengers. I may here refer to the fact that the bill of health from the consul at Naples declared that "there had been many cases of cholera at Naples and vicinity for the last five weeks. The exact number could not be ascertained. The mortality of those attacked is 70 per cent." (Consular bill of health.) The well passengers were removed the same day to Hoffman Island for observation, and the sick to Swinburne Island Hospital. The number of cases on board on arrival was eight; twenty cases have developed among the passengers since they have been under observation to this date; five of those removed from the vessel have died and three recovered. Of those that have developed while in quarantine, nine have died, four have recovered, five are convalescent, and the remaining two are now seriously ill. The disease has been very virulent and rapid in its fatality in a majority of the cases; in several instances patients that were well at the inspection in the afternoon were nearly or quite pulseless within twelve hours. At this date there has been no development of cases among the immigrants for the past two days.

The steamer was twice washed with scalding water

from the boilers through the hose in every accessible part, and immediately after this washed in every part with a solution of corrosive sublimate, two parts to one thousand. The hatches had been closed and sealed, and covered with tarpaulin before the passengers were taken on board, except three cabin passengers, taken at Marseilles. All the immigrants were removed to Hoffman island. Immediately subsequent to the washings with the solution of mercuric chloride, after breaking out the cargo to the bottom of the hold, one hundred pounds of sulphur were burned in the hold, the hatches of the spar-deck being closed for ten or twelve hours. The disinfection by the solution before mentioned was the next day repeated, every accessible portion of the vessel being washed with it by brooms or sponges, followed by the combustion of one hundred and fifty pounds of sulphur, the hatches being again closed until the following morning. Every textile fabric—carpets, mats, the dunnage and clothing of the crew—were immersed in boiling water for a considerable time by the introduction of steam through hose attached to the boilers. Finally, all exposed portions of the steamer, except the saloons, including the fore-castle, were repainted.

The steamer was detained in the lower bay fourteen days. The well passengers were removed to Hoffman Island for observation, and the sick to Swinburne Island Hospital the day of their arrival at quarantine. The cleansing and disinfecting of the baggage of the immigrants commenced immediately thereafter. A large tank that can be securely closed, having a perforated pipe, and extending from the bottom to the under side of the lid, and connecting with a large boiler used for heating the buildings, is used in part for the disinfection. Two rooms, fifteen by twenty feet each, made as close as possible, are used to disinfect by the combustion of sulphur. Each piece of baggage and every article of clothing have been subjected to sulphurous acid gas thus produced for several hours, in the ratio of three pounds to each one thousand cubic feet of air-space. The disinfection by moist steam heat has been at the same time constantly in progress—the clothing is subjected to this process for at least three hours. Barrels of a solution of bichloride of mercury are placed in the closets and used to wash them after the dejecta of each person has been removed by the flush from the tanks above the hopper of the closet. Every day the floors of the large buildings, each 50 by about 150 feet, are washed with a solution of the same article. To-day the subjection of each and every article of baggage has been again commenced, and will be continued until all articles have been again disinfected by the means mentioned.

For two days past no new cases have developed. It is well to state that the first cases on the "Alesia" developed the ninth day after the steamer left Naples. It is as yet an open question whether the cases that have developed on Hoffman Island arose from infection contracted from the same source that gave rise to the deaths on board the steamer, or from sources that were transferred to Hoffman Island with the passengers. There is every reason to believe at this writing that the infection among the immigrants is destroyed, except, possibly, that its development may be exceptionally long delayed in cases which may occur.

THE CHOLERA.—The *British Medical Journal* of September 24, 1887, contains the following notes upon the cholera:

The hopeful signs of a cessation of the cholera epidemic, which seemed to be evident a fortnight ago, have, unfortunately, not been maintained; for, during the past week, the disease has broken out with renewed violence at Messina, in Sicily. As many as 156 cases and 44 deaths are reported to have occurred there on September 20. This recrudescence is reported to be associated in the local mind with the arrival in the port of a vessel from India; but the only foundation for such an opinion appears to be the fact that, while unloading, some of her crew fell ill and died. The disease maintains its foothold in Catania, Palermo, Tripoli, and other Sicilian towns. In the neighborhood of Naples, the disease has also shown a tendency to increase, especially around Castellamare. In Malta, the disease continues to cause several deaths daily. Up to September 22, 389 cases and 248 deaths had already occurred on the island.

BACTERIOLOGY IN SPAIN.—A bacteriological laboratory has been established at Barcelona. Dr. Jaime Ferran, whose name will no doubt be remembered in connection with the so-called preventive inoculations of cholera two or three years ago, has been appointed Director of the institution, with Dr. Inocente Pauli as chief assistant. The laboratory owes its establishment in a great measure to the initiative of Don Pablo Despax, a rich merchant of Barcelona, whose first intention was to found an institute for the treatment of hydrophobia, on the model of M. Pasteur's. On the matter being brought before the municipal authorities, however, they determined to establish a fully equipped bacteriological laboratory. The buildings, which are now completed, are in the gardens of the Asilo de los Pobres; they contain rooms for microphotography, for histological and bacteriological researches, and for inoculations, together with all the necessary instruments and appliances. Other rooms are fitted up as museums, and there is also a library. Antirabic inoculations will be carried out by Dr. Ferran and a staff of assistants, in strict conformity with M. Pasteur's methods.—*British Medical Journal*, October 1, 1887.

WHOOPIING COUGH LEGALLY CONSIDERED CONTAGIOUS.—The Attorney-General of Michigan, in response to an inquiry from the State Board of Health, has included whooping cough in the diseases declared "dangerous to the public health," and physicians will hereafter be legally bound to report it among contagious and infectious diseases.

MEANS ADVISED BY THE INTERNATIONAL CONGRESS OF HYGIENE, AT VIENNA, FOR CHECKING FOOD ADULTERATION.—CARO, of Madrid, HILGER, of Erlangen, and VAN HAMEL ROOS, of Amsterdam, in the discussion of the means which could be adopted by all nations for the prevention of food adulteration, advised the foundation of an International Commission, three members from each country, to take measures for suppressing fraud in foods; this Commission to control regularly the sale of foods, being in constant coöperation with scientific authorities in hygiene and medicine in their

several countries. This Commission is also to establish stations for the municipal examination of food, completely and uniformly organized and equipped. Uniform methods of examination and criterions of judgment are to be adopted, and international legislation, as uniform as possible, is urged. The technique of the examinations to be made is described, and the apparatus to be employed.—*Revue Internationale des Falsifications des Denrées Alimentaires*, September 15, 1887.

VIENNA VACATION COURSES.—These courses, inaugurated during the recent vacation season in Vienna, were much less frequented than was expected, the chief attendants having been foreigners.

MEDICAL TEACHING AT OXFORD.—Oxford University has recently erected and equipped buildings devoted to the study of anatomy and physiology, with histology. The future student of medicine can now ground himself thoroughly in these branches, and in chemistry, at Oxford, before entering a college of medicine.

CONTAGION FROM LIBRARY BOOKS.—The sanitary authorities of Hawick, Eng., have requested, and the public library board requires, that those who take books from the library shall sign a statement that no infectious disease exists in their houses; that they will return the books and give notice if any infectious disease appears.—*Sanitary Inspector*, September, 1887.

A CURIOUS ADULTERATION OF MACE.—A very strange adulteration of mace has been lately observed in Amsterdam. Pulverized biscuit had been mixed with mace in a very large proportion. This adulterated spice was sold in several shops, and, looking at the enormous difference of price, a nice profit must have been yielded. Unfortunately, the mixture was not seized in the presence of witnesses, and the justice could not interfere.—*Revue Nationale Scientifique et Populaire des Falsifications des Denrées Alimentaires*, September 15, 1887.

COLOR-BLINDNESS AMONG THE RAILWAY OFFICIALS OF GERMANY.—An extensive investigation into the prevalence of color-blindness amongst German railway officials has afforded some interesting results. The inquiry, which has lasted several years—the latest data having been obtained on July 1, 1886—was extended to seventy-nine railways. Of 104,743 persons tested from April 1, 1882, to July 1, 1886, 850, or 0.81 per cent., were found to be color-blind. Of 239,726 persons tested up to July of last year, 1934, or 0.81 per cent., were color-blind, while in 145,556 officials and other servants employed on the seventy-nine railways on July 1, 1886, 100 were entirely and 441 partially color-blind, a percentage of 0.37. The methods of testing were chiefly the Stilling method (by means of color-plates) and the Holmgren method (by means of colored woollen threads); but the Cohn, Schmidt, and Rimpler methods were also adopted. In 16,201 cases the test was repeated, and 305 times only did the results differ from former results. The officials of German railways who are color-blind have been given duties, in the discharge of which their incapacity can have no ill results, so that there is no

danger of their continued employment in dangerous posts.—*British Medical Journal*, September 3, 1887.

ON BALDNESS.—DR. AUSTIN FLINT sends to the *Popular Science Monthly* for October, 1887, an article written in 1853 by his father, which we quote as follows:

I send an extract from this article which appeared as an editorial in the *Buffalo Medical Journal*, March, 1853, No. 10, page 651, and was entitled "Hats and Baldness": The most characteristic trait of the hat is the tightness with which it encircles the head. Herein consists, in our opinion, its agency in the loss of hair. The stove-pipe hat must needs encircle the head tightly, in order to be secure in its position in spite of wind and other disturbing forces. To appreciate the degree of compression, one has only to note the indentation on the forehead after a tightly fitting hat has been worn for some time. Everybody knows how commonly this is to be observed. The head is, in fact, pretty firmly ligated while the hat is worn. Now, what must be the effect of this on the circulation? Plainly, the effect is to interrupt the circulation in the scalp above the circle on which the compression is made. It is precisely like tying a cord around the head, sufficiently to diminish, if not stop, for a time, the flow of blood through the temporal and other arteries by which blood is distributed to the superior portion of the scalp. The hair follicles, as is well known, are very vascular. Their functions require this vascularity, and an adequate, constant supply of oxygenated blood. If this supply be diminished, the growth and nutrition of the hairs are proportionally affected, and, finally, the *pulp* inclosed in the follicle withers and dies, as does any other part when deprived of the *pabulum vite*. This effect occurs on the crown, because interruption of the circulation in arteries is always felt most in the parts to which the terminal branches are distributed.

"Such is our explanation of the fact that baldness is so frequently observed in the young and middle-aged men of the present generation. The remedy is to repudiate the present fashion of hats. Let some inventive genius devise a substitute for the unseemly, as well as hair-destructive, article which is now the *mode*, and we are firmly convinced that toupees will become objects of curiosity rather than utility, and the bald pate will again be venerated as the distinguishing trait of old age." . .

A COMMISSION TO REGULATE THE PRODUCTION AND USE OF ALCOHOL.—The French are about to appoint a commission under the presidency of Léon Say, composed of senators, deputies, the Dean of the Faculty of Medicine, and practical chemists, to legislate regarding alcohol and the hygiene of beverages.

AN INTERNATIONAL JOURNAL IN THE INTEREST OF PURE FOODS has been recently established. It is edited by VAN HAMEL ROOS, of Amsterdam, and has upon its staff collaborators from the civilized countries of the world. The American contributor is Dr. Tucker, of Albany. The journal is published in French, German, and English. It will be published six times yearly, each issue containing from 150 to 180 large pages. At the recent meeting of the International Congress of Hygiene, at Vienna, the journal was declared the official organ of the Congress.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U. S. ARMY, FROM OCTOBER 4 TO OCTOBER 10, 1887.

HALL, WILLIAM R., *Captain and Assistant Surgeon*.—Ordered from David's Island to Fort Custer, Montana.—S. O. 232, A. G. O., October 5, 1887.

PRICE, C. E., *Captain and Assistant Surgeon*.—Ordered from Fort Custer to Fort DuChesne, Utah Territory.—S. O. 232, A. G. O., October 5, 1887.

SUTER, WILLIAM N., *First Lieutenant and Assistant Surgeon*.—Ordered from Washington Barracks to Fort McKinney, Wyoming Territory.—S. O. 232, A. G. O., October 5, 1887.

WEISEL, D., *Captain and Assistant Surgeon*.—Ordered from Fort McKinney to Fort Sill, Indian Territory.—S. O. 232, A. G. O., October 5, 1887.

HORTON, S. M., *Major and Surgeon*.—Ordered from Fort Riley to Fort Adams, Rhode Island.—S. O. 232, A. G. O., October 5, 1887.

BACHE, D., *Major and Surgeon*.—Ordered from Fort Adams to Fort Riley, Kansas.—S. O. 232, A. G. O., October 5, 1887.

KIMBALL, J. P., *Major and Surgeon*.—Ordered from West Point to Fort Elliott, Texas.—S. O. 232, A. G. O., October 5, 1887.

NEWTON, R. C., *Captain and Assistant Surgeon*.—Ordered from Fort Elliott to David's Island, New York Harbor.—S. O. 232, A. G. O., October 5, 1887.

HEIZMANN, C. L., *Major and Surgeon*.—Ordered from Fort Ontario to West Point, New York.—S. O. 232, A. G. O., October 5, 1887.

CASTER, E. C., *Captain and Assistant Surgeon*.—Leave of absence further extended fifteen days.—S. O. 231, A. G. O., October 4, 1887.

CABELL, J. M., *First Lieutenant and Assistant Surgeon*.—Will be relieved from duty at Fort Omaha. Assigned to temporary duty with Battalion of the Sixth Infantry in the field.—S. O. 98, *Department of the Platte*, October 1, 1887.

BORDEN, W. C., *First Lieutenant and Assistant Surgeon*.—Will be relieved by officer commanding troops, upon arrival of Assistant Surgeon Cabell, and will return to his station, at Fort Douglas, Utah.—S. O. 98, *Department of the Platte*, October 1, 1887.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING OCTOBER 8, 1887.

MARTIN, WILLIAM, *Assistant Surgeon*.—Detached from the Hospital, at Norfolk, and granted sixty days' leave.

BATES, N. L., *Medical Inspector*.—Detached from the Naval Dispensary, and ordered to the Examining and Retiring Boards.

PRICE, A. F., *Surgeon*.—Ordered to the Naval Dispensary, at Washington, D. C.

WAGGENER, J. R., *Surgeon*.—Ordered to the Receiving Ship "Minnesota."

FITZSIMMONS, PAUL, *Surgeon*.—Detached from the "Minnesota," and ordered to the "Marion," October 15th.

ATLEE, LOUIS W., *Assistant Surgeon*.—Detached from the Receiving Ship "Vermont," and ordered to the "Marion," October 15th.

RUSH, W. H., *Passed Assistant Surgeon*.—Detached from the Coast Survey Steamer "Blake," and ordered to the Navy Yard, New York.

BERRYHILL, T. A., *Assistant Surgeon*.—Detached from the "Minnesota," and ordered to the "Blake."

DRENNAN, M. C., *Surgeon*.—Detached from the Naval Academy, and wait orders.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE, FOR THE WEEK ENDING OCTOBER 8, 1887.

IRWIN, FAIRFAX, *Passed Assistant Surgeon*.—Granted leave of absence for twenty-five days, October 5, 1887.

GUIERAS, JOHN, *Passed Assistant Surgeon*.—Granted leave of absence for seven days, September 28, 1887.

NORMAN, SEATON, *Assistant Surgeon*.—Upon expiration of leave of absence, to rejoin station, at New York, October 4, 1887.